KPMG

The Global Leader

City and County of San Francisco

Strategic Plan for Information Technology

June 1996

Info Tech - C - SF

Tech & state " "

Infor stora & ret mgt

Info ret resources

Cost info — —

computer net resources

Info resources mgt

Public Services

1. EXECUTIVE SUMMARY 4

1.1. Project History 4

1.2. Vision for Technology - *The Interconnected City* 5

1.3. Current Environment 6
1.3.1. City-wide issues which impact technology 6
1.3.2. City-wide technology environment 7
1.3.3. Functional area systems in progress and issues 10
1.3.4. Implications of *Status Quo* 11

1.4. Information Technology Strategies 12
1.4.1. Organizational Strategy for Technology 12
1.4.2. Information Technology Governance Strategy 13
1.4.3. City-Wide Service Delivery Strategy 14
1.4.4. Human Resources Strategy 15
1.4.5. Funding Strategy 15
1.4.6. Systems Implementation Strategies 16
1.4.7. Information Systems Architectures Strategy 16
1.4.8. Procurement Strategy 16

1.5. High Priority Technology Projects 17

1.6. Recommendations 17

2. METHODOLOGY 19

2.1. Project Initiation and Background Information Gathering 19

2.2. Management Interviews 20

2.3. Functional Area Workshops 20

2.4. Prepare Draft Strategic Plan for Information Technology 21

2.5. City Management Workshop 22

2.6. Final Plan Development 22

3. CURRENT ENVIRONMENT 23

3.1. City Wide issues which Impact the Use of Technology 23
3.1.1. External Forces Impacting San Francisco 23

97·00179

3.1.2. Overall City Budgeting Process 24
3.1.3. Human Resources Function 26
3.1.4. Purchasing Function 27
3.1.5. City performance rewards system 27

3.2. Current City Wide Technology Environment 28
3.2.1. Implicit Strategies 28
3.2.2. Current IT and Service Delivery Organization 29
3.2.3. Current Areas of Success 31
3.2.4. Areas where the City has been less successful 33

3.3. Functional Areas: Systems in Progress and Issues 35
3.3.1. Human Resources 35
3.3.2. Financial Systems (ON-LINE FAMIS) 37
3.3.3. Property/Land Use 38
3.3.4. Geographic Information Systems (GIS) 38
3.3.5. Public Outreach/Internet access 39
3.3.6. Telecommunications 39
3.3.7. Public Safety 40
3.3.8. Justice 40
3.3.9. General Administration - Smaller Departments and Commissions 41
3.3.10. Recreation/Arts/Culture/Library 42
3.3.11. Capital Projects 43
3.3.12. Health and Human Services 44

4. INFORMATION TECHNOLOGY VISION 46

5. INFORMATION TECHNOLOGY STRATEGIES 49

5.1. Organizational Strategy for Technology 49

5.2. Information Technology Governance Strategy 52

5.3. City Wide Service Delivery Strategy 54

5.4. Human Resource Strategy 56

5.5. Funding Strategy 57

5.6. Systems Implementation Strategy 58

5.7. Information Systems Architectures Strategy 59

5.8. Procurement Strategy 61

6. ACTION PLAN 62

6.1. Adopt a new Governance Policy 62

6.1.1. Council on Information Technology 62
6.1.2. Technology Advisory Group (TAG) 64
6.1.3. Major Project Steering Committees 66

6.2. High Priority Technology Projects 66

7. RECOMMENDATIONS 68

7.1. Central Technology Group 68
7.1.1. Mission 68
7.1.2. Responsibilities 69
7.1.3. Funding 70
7.1.4. Human Resources Policies for Technology Staff 70

7.2. Funding for COIT, TAG and Supporting Staff 71

7.3. Strategic Plan for Information Technology - Phase II 71
7.3.1. Current Systems Assessment 72
7.3.2. Business Processes to be addressed by Technology 72
7.3.3. Organizational Goals for the new Central Technology Group 72
7.3.4. Project Plans 72
7.3.5. Establish Priorities 73
7.3.6. Adopt the Plan 73

7.4. Year 2000 Issues 74

7.5. Networking - the Interconnected City 74

7.6. Develop project review procedures 74

7.7. Establish Universal Baseline for Information Technology 75

7.8. Establish Departmental Systems Quality Standards 76

7.9. Continuing Education Policies 76

7.10. Develop Policies and Procedures for Technology Procurement 77

8. CONCLUSION 78

1. Executive Summary

1.1. Project History

The Electronic Information Processing Steering Committee of the City of San Francisco (EIPSC), under the direction of its chairperson, the City Controller, established a project to develop a City-wide Strategic Plan for Information Technology using the aid of an outside consultant.

KPMG Peat Marwick, LLP was selected through an RFP process, and has worked with the management and staff of the City and County of San Francisco to develop this Strategic Plan for Information Technology. Starting in September, 1995, KPMG consultants interviewed members of the Board of Supervisors, department and division heads, along with representatives from the Mayor's Office to develop an understanding of the business requirements and goals of the City.

EIPSC and the Controller's Office established a project to develop a City-wide plan

A series of focus group sessions were conducted for members of the City's management team, organized by common function or information needs. The results of those interviews and focus groups led to the development of a draft Strategic Plan, reflecting the concerns, issues and vision of the City's leadership.

In February, 1996, a two day workshop was conducted, attended by department heads from each of the focus groups, a member of the Board of Supervisors, the Mayor's Finance Officer, and the Controller. During these two days, the City's leadership team came to consensus on a vision for technology in the City, a series of strategies to follow to make that vision a reality, and some specific short-term actions to start the implementation of those strategies. In addition, KPMG's consulting team has developed a number of recommendations for further activities to move toward the leadership team's vision for the City. This Strategic Plan for Information Technology presents a summary of these efforts.

San Francisco's Policy and Management Team Established the Vision and Direction

1.2. Vision for Technology - *The Interconnected City*

An agreed-upon Vision Statement acts as the proverbial "pot of gold" which keeps strategies, projects and organizations aligned. By "keeping their eye on the prize", departments can contribute directly toward the achievement of City-wide goals.

The management and policy workshop came to a consensus on their vision for the future of City technology. The vision, summarized in the phrase "The Interconnected City", can be described as a series of interconnected business goals that, when achieved, will provide the enabling technology and support critical to the future success of the organization. The vision statements are:

The Vision for Technology represents a new, open, accessible, flexible and effective way of doing business in the City

- **Technology is understood and accepted as a necessary enabling tool**
- **Overall business priorities and goals are put forth in a City-wide business plan**
- **City departments can communicate seamlessly and have access to all information needed to do their jobs**
- **A coordinated strategy for information technology leads to common standards, priorities and methods**
- **The City adopts a universal baseline for technology for its entire knowledge-workforce**
- **Measurable performance improvement is achieved through new systems**
- **The City has a "one-stop shop" for technological innovation, information, advice and support**
- **Technical staff with necessary skills and capabilities are available to creatively address business needs**
- **Procurement processes are timely, flexible and responsive**

1.3. Current Environment

During interviews and focus groups in this project, members of the Board of Supervisors, the Mayor's staff, department heads and public interest representatives presented a strikingly consistent view of the City's current technology environment. In analyzing the information presented, KPMG organized the observations into three categories, summarized below.

1.3.1. City-wide issues which impact technology

Technology and information systems exist in the context of the organization they serve. San Francisco, as a local government agency, itself exists in a context defined by its constituents, the State of California, the Federal Government, the environment, the economy and other items beyond its control. Additionally, as a political organization, the climate is defined by election results and ballot measures contribute to this context.

Shrinking budgets, increasing workloads and changing regulations

There are some City-wide organizational and financial issues that, while not a direct part of a technology plan, can have an impact on the ability of the City to acquire and implement new technologies in an effective manner. Specifically sited were:

- ***Overall City Budgeting Process.*** Departments pointed to the lack of a City-wide business plan to guide priorities and decision making. Consequently, departmental plans are established independently, with each department setting its own goals and objectives. The budget process itself is comprised mainly of single-year, individual departmental budgets. Long-term issues, interdepartmental cooperation and higher-level priorities can easily be sacrificed to short-term decisions. In this environment, technology is considered an add-on extra rather than a necessary part of doing business.

The City's Budget, Human Resources and Procurement Processes have hampered technology implementation

- ***Human Resources Function.*** There was unanimous agreement that the City's management of its fundamental human resources functions impeded the success of departments, not only in

- ***Human Resources Function.*** There was unanimous agreement that the City's management of its fundamental human resources functions impeded the success of departments, not only in technology, but in their overall business planning. Issues raised included a lack of basic personnel information; difficulties and unnecessary delays in recruiting, hiring, training and retaining qualified technical staff; the long process of redefining technical job classifications and complexities driven by the collective bargaining process.
- ***Purchasing Function.*** Much of the City's leadership viewed purchasing as an obstacle to be overcome rather than an aide in acquiring needed equipment and technology. Departments sited overly bureaucratic processes, administrative code restrictions, unnecessary delays, and technical reviews by non-technical staff as hindering timely and effective procurement.

1.3.2. City-wide technology environment

The City currently is providing services to departments through a number of organizations, specifically:

Multiple, relatively independent groups control technology in the City

- ***Electronic Information Processing Steering Committee*** (EIPSC, "Ice-Pick"), is the primary information technology regulatory committee in the City. EIPSC reviews departmental plans and acquisition requests, sets and enforces technical standards, and operates the computer store, an "open-to-buy" arrangement competitively bid among PC vendors. In its role as an internal consultant and facilitator for technology, EIPSC established the strategic planning process which led to the development of this document.
- ***Controller's Information Services Division*** (ISD), is responsible for systems planning, new technologies research, networks and data communications, maintenance and implementation of large-scale, City-wide systems as well as consulting, software development and training for PCs, network, mini- and mainframe systems.
- ***Department of Electricity and Telecommunications*** (DET), installs and manages interdepartmental voice communications (radio and telephone) and wires many data networks.

- *Individual departmental technology staffs* implement, operate and maintain systems serving those departments that have built their own technology units.

While the City does not have an organization-wide strategic plan in place, decisions made in budgeting for, acquiring and implementing technology point to a series of implicit strategies that indicate the direction being taken for technology. Those apparent strategies include:

- ***Deferred maintenance***. Systems, like physical infrastructure, have been allowed to deteriorate over time due to lack of resources for maintenance and replacement.
- ***"Planned Dis-integration"***. Multi-departmental systems, especially in the safety and justice areas, have drifted apart as departments make individual budget and business decisions to acquire new systems.
- ***Decentralization***. Those departments that have the vision and financial ability to support technology have acquired their own systems and staffs, while some departments fall further behind.

Lack of resources and incentive to cooperate has led to lack of integration and large maintenance backlog

The budget process, in which Controller's ISD presents their budget separately from their customer departments, has hampered ISD's ability to provide needed levels of resources. ISD's budget can be cut without consideration for the impact it might have on other departments. Some departments with funding for projects or support services have found it easier to hire staff rather than compete for limited ISD resources.

The City has achieved a number of areas of success as noted in the plan, including:

ISD is moving forward;

Some departments are successful

- ISD has done a better job than most peer organizations in growing beyond the mainframe environment to support diverse technologies.
- ISD has established a project, already well underway, to provide City-wide connections for electronic mail
- A number of departments have succeeded in implementing technology in support of modern business practices
- Some departments have been relatively successful in identifying revenue streams to support technology
- The Computer Store has been widely accepted as an effective way to acquire needed technology on a timely basis

On the other hand, analysis of the current environment identified a number of areas where the City has been relatively less successful, including:

- There is a commonly held belief that City policy makers do not understand the application of technology or its implication for the business and services of the City.
- The City has not been successful in the recruitment, hiring, retention and training of technical staff, an issue that is exacerbated by competition from Silicon Valley firms.
- Interdepartmental communication and sharing of success is not a standard way of conducting business in the City.
- The interdepartmental communications network, necessary for supporting integrated systems and voice/data/electronic mail communication is incomplete.
- Purchasing procedures are viewed as ineffective at best, and time consuming and wasteful at worst. Reliance on outmoded procedures has hampered the ability of the City to acquire quality systems in a timely fashion.
- Many City legacy systems are inflexible, do not generate needed management information, have significant maintenance backlogs, and may not be able to perform at the turn of the century.
- Personnel and position control information is scattered through the organization, incomplete and often not available at all.

The City has not prioritized technology and interdepartmental communications

1.3.3. Functional area systems in progress and issues

Interdepartmental focus groups provided the majority of input for this Plan

Focus groups were conducted for the management of departments in specific functional groupings. The functional area groupings included some areas that already had a de facto or actual technology steering committee in place, such as the Law and Justice and the Property Management areas. In other cases, the departments invited to a focus group were meeting for the first time to discuss information systems issues.

The groups defined for this project were:

- Financial Systems
- Geographic Information Systems
- Property and Land Use Systems
- Public Outreach/Public Access
- Telecommunications
- Public Safety
- Law and Justice
- Human Resources
- General Administration - Smaller Departments and Commissions
- Recreation, Culture and the Library
- Capital Projects
- Health and Human Services

Many of these functional areas had major projects either in progress or in the planning phase. A description of the current systems, systems in progress, and issues being faced by each of these groups is included in the plan document.

Departments overall expressed a strong desire to implement new technology, and an understanding of the need for interdepartmental cooperation and sharing of success. The vision for technology for the City and many of the strategies included in this plan are the direct result of the interaction that took place during these group sessions.

1.3.4. Implications of *Status Quo*

Business as usual will fail to meet the City's future needs

The consensus of the participants in this project at all levels was that the City has fallen behind in technology, not just from an equipment perspective, but, perhaps more importantly, from the human perspective of vision and direction from management and acceptance and knowledge from City staff. Given the current budgeting policies and the low apparent priority placed on technology, the City's management team fears that, in the absence of a new direction, the City will continue to lose ground in the use of technology.

The management team points to the current political, economic and social environment as reasons for not maintaining the status quo. Demands for service have increased dramatically, and future projections do not show it leveling off. Budgets have been cut significantly, and, again, the future looks like more of the same. Public expectations for quality and convenience of service have risen dramatically, set by private sector organizations such as banks, brokerage houses, supermarkets and the like.

Continuing to do business the way it has always been done will lead inevitably to failure. Current processes and procedures require higher staff counts to increase service levels; current budgets dictate staffing cuts. The private sector has led the way in providing more services through technology at a lower cost. Public sector organizations, bound by traditional rules and bureaucratic policies, have not followed effectively. The only solution is to re-think processes and procedures to take advantage of technological innovations.

In summary, the consensus of the City's management team can be expressed in three main points:

- **Lack of funding in the face of increased service demand will mandate the use of technology**
- **In the absence of vision and money, nothing gets done**
- **Information technology is necessary to do business but organizational strategies and policies are required to tie it together**

1.4. Information Technology Strategies

Achieving the Interconnected City vision will require adopting strategies to set policy direction and focus decision making. The management and policy workshop developed a series of strategies to address the obstacles identified in the current environment and to promote interdepartmental cooperation and sharing of information. These strategies are:

1.4.1. Organizational Strategy for Technology

At a policy and management level, the City must adopt new methods and directions to make the use of technology effective. Areas addressed include:

Organizational strategies set new policy directions for the City

- ***Management sponsorship for technology.*** Management at the policy, executive and department head level must understand the impact of technology on service delivery and include it as an integral part of business planning and budget advocacy.
- ***Strategic plan for information technology.*** This plan should be formally adopted by the City through the Board of Supervisors, and a mechanism should be put in place to update it on a regular, periodic basis.
- ***Performance based measurements.*** Technology project plans should be supported by definitions of specific expected improvements and methods for tracking success.
- ***Public access and public outreach.*** New systems must provide access methods for the public to obtain information and participate in City processes and services.
- ***Flexible standards and policies.*** Standards set City-wide must allow departments to meet their unique business objectives.
- ***Roll-out for new technology***. New and updated systems and standards should be planned to allow adequate training and support.
- ***Equipment, software and training minimums for employees.*** The City must set guidelines to establish a minimum level of technology and training for each City knowledge worker.

- ***System security and data confidentiality***. Sharing of systems and resources must take into account the need to ensure the integrity of the data and the confidentiality of participants. Widespread access from City offices and increasing outreach to public access points and the Internet puts a premium on well planned and managed network security.

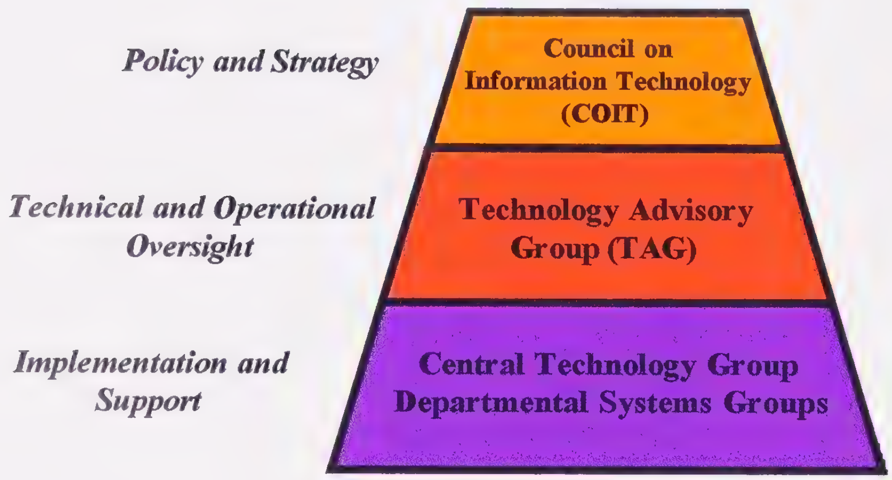
1.4.2. Information Technology Governance Strategy

The City's management team developed a three-tiered approach to City-wide prioritizing and decision making for technology, to recognize the inherently different levels of decisions that must be made. The three levels are:

- ***The Council on Information Technology (COIT)***, which will be a policy-level group to act as the City's advocate and sponsor for technology.
- ***The Technical Advisory Group (TAG)***, which will serve at the level of the current EIPSC, providing technical review of project and departmental systems plans and advice to COIT on standards, project feasibility and system integration requirements.
- ***The Central Technology Group and departmental systems groups*** management, who will manage the implementation of project plans. Each multi-departmental project will have a single Project Manager, with responsibility for day-to-day decisions, tracking and budget for that project.

Policy, technical and implementation management at appropriate levels

City and County of San Francisco
Technology Governance Structure



1.4.3. City-Wide Service Delivery Strategy

Under the leadership of COIT and TAG, the City will coordinate the construction of an information and telecommunications network to link all City departments. Primary responsibility for development of this network will go to a newly constituted ***Central Technology Group***, consisting of the current Controller's Information Systems Division and the communications functions of the current Department of Electricity and Telecommunications.

The Central Technology Group develop and support interdepartmental communication, both voice and data, as well as multi-departmental systems. They will function as the City's "one stop shop" for technology, providing leadership and guidance in the areas of new and emerging technology and in the selection and implementation of systems to meet specific business requirements of the departments. The Central Technology Group will also assume a quality assurance role by setting operations and disaster recover standards for the departments.

A combination of centralized and decentralized resources to provide flexibility

Departments will retain their current technology support groups, and will have the option to develop resources internally, select outside service providers or make use of the Central Technology Group for designing, selecting, developing and implementing internal departmental systems.

1.4.4. Human Resources Strategy

Key areas of human resources policy to be addressed based on the findings in this plan include:

- Mandatory annual training for technology staff
- Ease of transfer among technology groups
- Training for City staff on baseline and appropriate technology
- Acceleration of the recruitment and hiring processes for technology staff
- Meeting the competition for skilled employees by offering competitive compensation packages
- Consideration of computer skills for recruitment of new City employees, either as a pre-requisite or a training requirement

Human Resources strategy to include training and career paths

1.4.5. Funding Strategy

The City must recognize that technology will require a significant, ongoing and consistent level of investment. Strategies included in the plan call for:

- Integration of technology into service delivery models to generate true cost savings
- Benchmarking technology investment of peer organizations in the public and private sectors
- Developing a multi-year budgeting process for technology
- Developing a plan for update and replacement of technology (asset management)
- Capitalizing on investments made by well funded departments

Consistent, long range funding and true cost savings

1.4.6. Systems Implementation Strategies

The prioritization of projects, development of project business plans, decision to buy or build systems, selection of specific technologies and support of investment in technology over the long term are addressed by a series of strategies:

- Planning for and acquiring technology will be driven by business needs, not technology requirements
- Departments will review and revise their practices and policies to leverage technology investments
- The decision to develop a custom system must be based on a true cost-benefit analysis
- Project plans must address long-term maintenance and support costs as part of the initial proposal
- Trigger points that determine the need to replace systems need to be defined as part of the ongoing planning process

Systems and redefined processes driven by business requirements

1.4.7. Information Systems Architectures Strategy

The plan provides for Centralized, Decentralized and Distributed systems, with specific business requirements determining the optimum architecture for each application. The use of open systems and compatible communications protocols will provide the connectivity and ability to integrate systems envisioned in the Interconnected City.

Open systems, both centrally and in departments

1.4.8. Procurement Strategy

The procurement process for technology should be reviewed based on the goal of facilitating the acquisition of the most appropriate solutions to business needs. The City should investigate the use of leasing, open orders, site licenses, bulk service contracts, CMAS and other pre-approved contract award schedules to decrease the cost, complexity and duration of the purchasing process.

Flexible, responsive, rapid procurement procedures

1.5. High Priority Technology Projects

Three systems critical to City operations were given highest priority

The management workshop agreed that, in order to make this plan "real" for the City, a series of high priority projects should be approved for immediate action. These projects would be the first undertaken under the new governance structure. The projects selected are:

- The E-911 Emergency Dispatch System
- The Property System
- The Human Resources System

An RFP has already been issued for a new Property System; the interim police dispatch system has been selected, but a permanent solution is not yet funded; and the Mayor's Advisory Council has been meeting on the issue of a Human Resources System. These projects should be among the first orders of business when COIT is established.

Each of these systems can, by following the Funding Strategies, bring the City closer to the vision of the *Interconnected City*.

1.6. Recommendations

Combine data processing and telecommunications

KPMG developed a series of recommendations designed to move the City forward toward the vision of the Interconnected City. The highest priority recommendations include:

- Establish the Central Technology Group by combining current Controller's ISD and the Department of Electricity and Telecommunications voice and data networking functions. There is no longer any meaningful distinction between data processing and communications from an internal organizational perspective. Compatibility of computers, networks, and communications is critical to the success of the City.
- Develop a budgeting process where the Central Technology Group's budget for service resources takes into account the budgets and needs of its customer departments.

Develop human resources and procurement policies to facilitate technology implementation

- Establish specific human resources policies for technology staff City-wide, covering the areas of job descriptions, skills assessment, recruitment, an expedited hiring process, mandatory training, career paths and flexible staffing for support functions.
- Develop policies and procedures for technology procurement by establishing a mission of facilitation for the purchasing function, evaluating "best practices" from peer organizations in the public and private sectors, establishing performance goals for purchasing, and evaluating alternative procurement methods.
- Provide funding for COIT, TAG and supporting staff to allow them to perform their functions effectively.
- Once COIT is established, in addition to the three major systems projects described above, it should address the following issues:

Complete the strategic planning process

- Continue with the strategic planning process to develop a full current systems assessment, project plans and budgets for major technology projects, and priorities and schedules for implementation.
- Develop and implement a plan to address Year 2000 issues for all systems City-wide.
- Develop and implement standards for disaster recovery and business resumption planning for all mission-critical City systems.
- Complete City-wide interconnections and networking capabilities.
- Establish a City-wide baseline for knowledge worker technology and training
- Establish quality standards for departmental systems operations

COIT should set clear direction and establish priorities for the Central Technology Group and for major technology investments City-wide.

2. Methodology

The Strategic Plan for Information Technology project for the City and County of San Francisco was conducted in sequential phases designed to elicit broad participation and support on the part of City management. Major phases of the project were:

- Project initiation and background information gathering
- Management interviews
- Functional area workshops
- Draft plan development
- City management workshop
- Final plan development

KPMG consultants worked closely with EIPSC staff, the City Controller, and Controller's ISD management to develop the workplan, schedules, interview outlines and meeting agendas used in this project.

2.1. Project Initiation and Background Information Gathering

During this task, KPMG consultants worked with EIPSC and Controller's ISD to confirm the work plan, identify the project team members, and develop an initial list of City management for one-on-one interviews. The management interview list was designed to provide an accurate cross-section of activities and functions within the City and County organization. Included on the list were:

- Three members of the Board of Supervisors
- Representatives of the Mayor's Office
- Department heads or administrative division managers for major City departments
- Department heads or administrative division managers for a selection of smaller departments, agencies and boards

Specific activities during this phase included:

- Conduct project team orientation
- Initiate quality assurance procedures
- Provide project schedule to CCSF project team
- Develop representative list of CCSF management for participation in interviews

- Develop interview schedule matching CCSF functions with consultant expertise
- Develop interview guidelines to match CCSF objectives

Background information on the history, budget and current plans for technology in the City provided KPMG Peat Marwick with a thorough understanding of the automation goals and standards as well as the overall status of major systems serving CCSF.

KPMG reviewed current and recent departmental systems plans as submitted to EIPSC, budgets for technology, and project descriptions for pending projects and those currently underway.

2.2. Management Interviews

KPMG consultants interviewed selected CCSF management and policy team members to determine the City's business objectives and strategic direction. The interview guideline concentrated on non-technical issues to gain a perspective on the business, analysis, and planning issues facing CCSF. The objective in this task is to identify and define business procedures employed by CCSF and organizational information requirements. Through the interview process, we documented major goals, objectives, perceived obstacles, business functions, and performance measurements in participating departments. Notes from individual interview sessions were faxed back to the participants for their review to assure accuracy in our findings.

Using the results of the interviews, KPMG documented critical issues facing CCSF, not only in the areas of information and communications, but also the way in which human resources, budgeting and procurement policies and practices impacted the ability of the City to implement new technology. The interview sessions provided valuable information on perceived needs, likely justifications, as well as how current systems are supporting business processes.

2.3. Functional Area Workshops

The development of a series of focus groups to initiate interdepartmental discussion of identified issues was the critical step in the project. The goal of the project was not to just create a series of policy statements, but more importantly, to develop a consensus for action among the CCSF management team and to develop a framework for continued planning and cooperation after the project is complete.

KPMG's consulting team worked closely with the Controller and EIPSC staff to identify specific functional areas where the need for interdepartmental cooperation and information sharing was significant. The Controller and EIPSC staff determined the list of management team members to attend each focus group session. In addition to department heads and administrative division heads for selected departments, each focus group

included representatives from the Mayor's Budget Office and EIPSC. The Public Access focus group included members of the public and the press, as well as the Foreman of the Grand Jury.

The list of functional areas for focus group sessions consisted of:

- Financial Systems
- Geographic Information Systems
- Property and Land Use Systems
- Public Outreach/Public Access
- Telecommunications
- Public Safety
- Law and Justice
- Human Resources
- General Administration - Smaller Departments and Commissions
- Recreation, Culture and the Library
- Capital Projects
- Health and Human Services
- Electronic Information Processing Steering Committee (EIPSC)

KPMG provided professional facilitation and functional expertise from our consulting team to each of these sessions. KPMG developed agendas for each focus group, based on the issues, obstacles and strategies elicited during the management interviews.

The goal of the session was to develop a model for the strategic plan based on CCSF's defined business requirements and priorities. Each group described their current environment, their vision for the future use of technology in the City, and developed their list of obstacles to success in reaching the vision. The focus groups served to synthesize the individual departmental requirements developed in the previous phase into a City-wide perspective on the future of information technology.

Notes from each of the focus groups were faxed to the participants for their comments and suggestions.

2.4. Prepare Draft Strategic Plan for Information Technology

The purpose of this phase was to edit and compile all of the previously developed materials into a complete and comprehensive CSSF Strategic Plan for Information Technology. KPMG consultants developed a combined draft Vision Statement for the City based on the notes from the focus group sessions. This Vision Statement consisted of a series of interconnected descriptions of the ideal technology environment as seen by the City's management team.

Based on the Vision Statement and an analysis of the current environment description and obstacles to success, KPMG developed a set of strategies which, if put in place, could

overcome the obstacles and help the City attain its vision. Many of the strategies flowed directly from statements made by various departments during the focus group sessions. KPMG additionally developed a list of specific recommendations for action by the City to start to put the strategies into place.

KPMG consultants presented the draft Strategic Plan for Information Technology to EIPSC in two worksessions on January 23 and February 2, 1996. EIPSC provided valuable input and suggestions to make the draft Plan more realistic for implementation in the City. Based on EIPSC's suggestions, KPMG modified the draft Plan for presentation to City management.

2.5. City Management Workshop

On February 15 and 16, 1996, KPMG facilitated a workshop for the CCSF management and policy team. Attendees included department head representatives from each of the focus group sessions along with a member of the Board of Supervisors, the Mayor's Finance Director, the Controller, the Manager of Controller's ISD, and EIPSC staff. This workgroup was the culmination of the project. The work group participants were provided with copies of the draft Strategic Plan for Information Technology for consideration prior to the session.

The goal of this session was to develop high-level, organization-wide consensus on those policies and projects necessary to achieve the vision of the organization. The results of this session provided the major input for this Plan document.

Over the course of the two days, the City's management and policy team discussed the Vision, Strategies and Policies needed to move ahead on information technology. Consensus was reached on a wide range of issues. The management group also discussed specific projects which they felt should receive the highest priority for funding. Areas where consensus was reached are documented in this Plan.

2.6. Final Plan Development

KPMG consultants made revisions to the draft Strategic Plan to reflect the results of the Management Workshop. The resultant document was presented to the Controller, the Manager of Controller's ISD and EIPSC staff on March 13, 1996. This document incorporates suggestions and editing resulting from that meeting.

3. Current Environment

This plan for the use of information technology does not stand in isolation. It must exist and function within the context of the overall City and County organization. As such, it is necessary to consider the environment of the City and those issues and factors which will affect the City as it works toward implementing the vision and strategies in this document. This chapter is divided into three sections to describe various aspects of the environment:

Section 3.1 describes the overall City environment and the impact that various policies and organizational issues have on technology.

Section 3.2 describes the current technology environment in the City from a City-wide perspective

Section 3.3 describes the various functions of the City and how they are served by technology and the projects currently in progress in those areas.

3.1. City Wide issues which Impact the Use of Technology

The purpose of this section is to discuss the issues that arose during the information gathering process that are beyond the scope of this plan, and, in many cases, beyond the ability of the City and County to resolve. However, ignoring these issues would not only be intellectually dishonest, it could also lead toward a plan which is unrealistic in the context of the City.

3.1.1. External Forces Impacting San Francisco

The City and County, like all local governments, is dependent on both the State and Federal governments for streams of revenue as well as for the definition of specific programs and services. The turbulence of recent political events has led to a number of rapid changes in these funding streams and program definitions, including:

- Cuts in Federal and State Subsidies - Public Health, Public Transit
- Forced move to managed care
- Plans for revamping of Public Health, MediCal and Welfare programs
- Rapid changes in telecommunications policy which strongly affect the City's telecommunications function
- Infinite expectations of the Public

Additionally, the political climate in the City itself is ever-changing. Constant ballot initiatives with organizational and budgetary implications make long range planning difficult. The cuts in funding actually increase the City and County's need for technology in order to continue to do business and provide public services.

While these issues are not within the control of the City and County, their resolution will have a significant impact on the organization, its programs and services, and the technology that will be required to support it.

3.1.2. Overall City Budgeting Process

The budget is a statement of City priorities, activities and the overall guideline to its business functions. As such, the budget sets the tone not just for the acquisition and maintenance of technology, but for the priority technology is given in the organization and for the degree to which it is accepted as an integral part of the City's service delivery functions.

During the interviews and focus groups, a number of significant issues regarding the budget process were repeatedly raised. The impact of these issues goes far beyond technology. Examples of these issues include:

- **The lack of a City wide business plan to guide priorities**

  The City and County does not currently have a City wide business plan. Without such a plan, the City does not employ an explicit long term strategy to make decisions regarding the allocation of resources. Decisions are made in a reactive, current-year mode rather than in a proactive, long term mode. A long term strategy would allow the City to develop a vision of itself as an organization and provide a blueprint for making decisions to achieve that long-term vision. The current year-to-year mode creates an atmosphere in which many departments feel their goal is to maintain the status quo with regard to service delivery processes, technology support and overall infrastructure. In addition, many departments do not have a business plan within their organization.

- **Single year single departmental budgeting process**

  Each department submits an annual budget, which is analyzed and approved or modified in apparent isolation from other departments or multi-departmental objectives. Departments are forced to compete for resources and general fund money, which tends to reinforce departmental boundaries and the feeling, reported in many focus groups, that departments operate as individual fiefdoms rather than a part of an overall organization.

  Since the general fund is limited and funds are tight, departments must evaluate requests for technology and maintenance funds against requirements for staffing or facilities. Technology has not been integrated as a part of the service delivery

function in many departments. In the eyes of many budget policy decision makers, new systems are "nice to have" items above and beyond providing services. All departments which are not enterprises and do not receive external funding compete for general fund money for their information technology tools.

In the absence of a business plan that integrates systems into service delivery, and provides a long term vision of the City as a business organization, the single year, single department budget will continue to enforce the irrelevance of modernizing systems. Perhaps one of the more interesting comments to be made during a focus group session was: "The decision between keeping a clinic open for a year or acquiring a new computer system becomes a *no brainer*."

Since the money which is used for basic operations is the same money used for information technology, when a decision needs to be made between expanded services to the public and information technology, the obvious choice is not information technology. Technology is not seen as a direct benefit to the public and can be perceived as politically inappropriate to choose over more tangible service enhancement. For example, putting more police officers on the street is more politically feasible than implementing a new records management system. However, examples such as the Department of Building Inspection and the Library show that technology can be effectively utilized in modernizing the overall organization and providing improved services to the public.

- **Interdepartmental cooperation**

The current budget process, in which departments do not share budgets or projects, creates an "everyone for himself" environment. While there have been projects which have shared funds between departments, the current budget and organizational environment does not easily lend itself to this type of interdepartmental cooperation. There is simply no incentive or benefit for the departments to cooperate with one another during the budgeting process.

The Controller's Office is developing a mechanism, to be used in establishing the project for the Property System, to develop and maintain multi-departmental budgets for large scale systems. Other groups, such as the law and justice departments, report that their earlier efforts at joint system implementation have met obstacles in the budget process, which has led to acquisition of individual department "islands of computing".

3.1.3. Human Resources Function

The Human Resources function of the City includes the recruitment, hiring, classification, payments and benefits, evaluation, discipline, termination and other employer-related activities. While these activities would always be complex in an organization the size of the City and County, several specific items were discussed in the focus group sessions as having a significant impact on the way in which the City conducts business and in the recruitment, retention and management of technical personnel resources. For example:

- **Recently created Human Resources Department**

  The Human Resources Department was created two years ago as a result of a ballot initiative. The creation of the department meant the merger of five discrete functions and an overall 30% reduction in staffing. The new department's City-wide function goes beyond any role previously undertaken in the past. Thus the department is still in the process of accurately defining its role. Staffing of the Department comes primarily from Civil Service staff, whose prior purpose was largely to serve as enforcer and advocate for employee work rules. The new role calls on the Department to support the City in recruiting, training, providing benefits, defining classifications and negotiating contracts with employees, some of which may actually conflict with the Civil Service function.

- **Recruitment and retention of staff**

  The City is in the process of a job classifications study for technology positions, a study that has been eight years in the making. Many departments report difficulty in keeping current with technology staffing requirements. Technology-related job descriptions tend to be restrictive and outdated given the rapid pace of change in the industry. Departments also point to job rules such as seniority and bumping rights as an obstacle to recruiting and retaining the highest quality staff. These issues have an impact far beyond technology.

- **New collective bargaining requirements**

  Collective bargaining continues to be a real challenge for the City as a whole. Most union contracts cover multiple departments and rules are different for each department. Departments reported that collective bargaining has resulted in difficulties in budgeting, scheduling and planning. The Payroll/Personnel Service Division (PPSD) of the Controller's Office feels that contracts were negotiated without regard to the cost or difficulty of implementation. Given the large number of contracts and the lack of consistency among them, the Division is having difficulty tracking and implementing provisions in the context of their current payroll system and the need to issue checks on a biweekly basis.

3.1.4. Purchasing Function

The City's purchasing process received a significant amount of criticism during the interviews and focus groups during this project. The procurement of goods and services in a governmental organization is a critical operational issue for timely acquisition of computers and other technology.

The Purchasing Division is in the process of modernizing its efforts. In parallel to the City's implementation of a new finance system, Purchasing is installing a new, on-line system (ADPICS) which it hopes will improve its ability to serve City departments. Goals of the project include:

- Moving to get rid of paper
- Phasing to an on-line system, allowing distributed entry of requisitions and access to current status information by departmental analysts.

However, departments report unnecessary delays and restrictions which they believe are a result of an overly bureaucratic process which does not give them room to manage their budgets and activities effectively. Provisions of the Administrative Code and Charter were sited as inhibiting the ability to effectively acquire information technology and imposing limits that are not realistic.

3.1.5. City performance rewards system

Many of the focus groups pointed to a lack of management accountability for decision making and prioritization as a reason for the lack of priority assigned to information systems. The groups indicated that there is no reward for management performance and no consequence for bad decisions. They recommended creation of a task force to develop performance standards and a management incentive plan.

3.2. Current City Wide Technology Environment

The current environment for technology in San Francisco is very much a function in transition. The mainframe systems still serve large segments of the organization, but smaller-scale minicomputer, client-server and network systems have been implemented in a number of functions. The central service organization has responsibilities for both City-wide and departmental computing resources and services, but many departments have opted to build technology staffs and resources internally. Departments vary greatly in their current levels of computer utilization and in their planning and devotion of resources in that direction.

3.2.1. Implicit Strategies

While there is no City-wide strategic plan currently in place for technology, certain strategies can be implied based on the actions and policies of the City. Specific strategies that seem to be followed include:

- **Deferred maintenance**

  In its budget decisions, the City has implemented a strategy of deferring maintenance costs for as long as possible. Departments reported effects of this policy on infrastructure, buildings and real assets of the City. With regard to technology, deferred maintenance has resulted in certain systems falling behind the requirements of the organization and the state of technology in the industry.

  In many ways, the strategy of deferred maintenance has left the City in a position where it is required to "catch up" on structural items before it can move forward. Examples include the continued use of outmoded systems such as the Wang computers and PCs incapable of running in a Windows environment as well as the lack of PCs in functions where the use of technology could make operations more effective, such as in the Police Department.

- **"Planned Dis-integration"**

  The City's budget process which de-emphasizes large-scale, multi-departmental projects and which sees technology projects as an "easy cut" has created a default strategy for 'dis-integration' of currently integrated systems. This strategy is most apparent in the areas of law, safety and justice. The current Justice System has been a candidate for replacement for years. In the absence of budget approval for a coordinated strategy, departments have opted to implement individual solutions to support their own requirements, thus resulting in a planned break-up of a larger, multi-departmental system .

- **Decentralization**

  The City and County currently operates in a decentralized manner. Those departments which have the staff, money and vision continue to implement and maintain useful systems. Those departments which lack any of these elements tend to fall farther behind in their technology. The City still has a large central support organization, but many departments have found it expedient to build internal support staff and become less reliant on central City support.

3.2.2. Current IT and Service Delivery Organization

Currently, San Francisco depends on a number of organizations for technology services, each with defined roles. In many cases, departments have options as to where to go for services (i.e. programming and consulting services can be obtained from ISD, recruited and staffed internally, or obtained as a contract service). Other areas, such as telephone communications and approval of technology plans, are the sole province of a single organization.

Support services for technology are provided by the following organizations:

- **Electronic Information Processing Steering Committee (EIPSC)**

  EIPSC's main role in the organization is to provide interdepartmental review and approval of planned acquisitions of technology. City policy requires each department to submit a rolling 3 year technology plan for EIPSC approval prior to major system acquisitions. These plans tend to be specific shopping lists for computers and software, and, as they are prepared by individual departments, tend to reinforce the stand-alone departmental view of service delivery in the organization.

  EIPSC is required to review all of the system plans. As EIPSC is supposed to provide a City-wide perspective on technology, they can point to areas where interdepartmental cooperation would be in the best interests of the City. EIPSC can request modifications to plans prior to approval.

  EIPSC also serves several other roles in the City. They are charged with setting City-wide technology standards, and have the power to enforce them by disapproving purchase requests. EIPSC also established and operates the "computer store" which is a series of price agreements with selected vendors to provide PC hardware and software that meets City standards.

  Membership in EIPSC is set by the Charter - the Mayor, the Board of Supervisors, the CAO, and the Controller have permanent seats; other seats are rotated among departments to provide multiple perspectives.

- **Controller's Information Services Division (ISD)**

  The Information Services Division is the main central resource for information systems and technology in the City. While historically the Division was responsible for mainframe systems and operations, it has branched out and modernized effectively into more modern technologies. The Division is responsible for:

  - Planning Services
  - New Technologies Research
  - Applications Development
  - Networks and Data Communication
  - Education and Training
  - Data Center Services including mainframe operations and systems support

  The Division is also organized to provide special services to smaller departments in meeting their limited resources.

  Organized mainly as an internal service department, ISD charges clients for services rendered. Some departments question current charge back rates, but, since departments are not required to use ISD's services, those rates are forced to be competitive.

  Organizationally, ISD reports to the Controller, who also is the current chair of EIPSC.

- **Individual departmental staffs**

  There are two crucial factors which are necessary to implement effective technology; vision and funding. Departments which have sufficient funding sources and commitment to technology are able to hire the staff necessary to maintain, develop and enhance their internal systems. These staff members work directly for the departments. Since these staff members are funded and do not report to any centralized group, they can work in isolation on projects within their department without regard to other city projects. There is little coordination among staffs of multiple departments. Given the absence of central technical quality assurance, departments that maintain their own staffs and systems are essentially on their own in terms of operations, back-up and recovery, disaster recovery and systems quality checking.

- **Department of Electricity and Telecommunications (DET)**

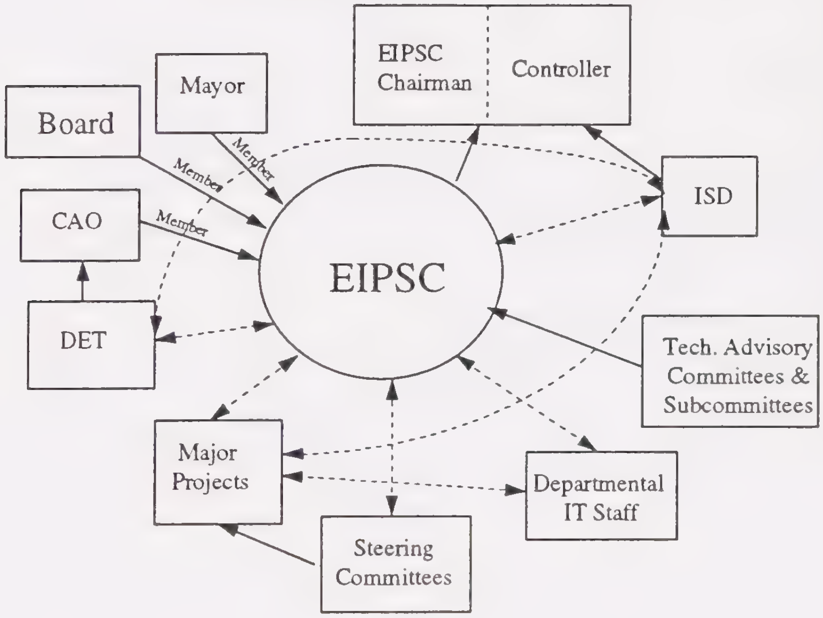
  The Department of Electricity and Telecommunications is responsible for interdepartmental voice communications (telephone and radio) as well as for wiring many data networks. Included in their responsibilities are planning for, evaluating and selecting communications equipment and services in critical areas

such as the new 800 MHz radio system, related 911 telecommunications components, fire alarm services and radio communications. They report a good working relationship with ISD in the construction and installation of computer networks.

DET maintains a monopoly over telephone services in the City in order to maintain standards and connectivity for the City voice network.

As described in the interviews and focus groups, interaction among the groups described above consists mainly of informal or ad hoc cooperation which takes place in the forms of committees and task forces. EIPSC serves as a central clearinghouse, and has direct ties to the other organizations listed. Diagramatically, the current environment as described is depicted below.

City and County of San Francisco
CURRENT IT ENVIRONMENT



3.2.3. Current Areas of Success

The City has achieved success in some of its technology endeavors. During the information gathering phase of this planning process, the following areas were identified as examples of success in acquiring and implementing technology in support of the City:

- **Locating alternate sources of revenue**

  There are departments within the City and County (e.g. Sheriff, Library, Social Services) who have found alternate sources of revenue through external funding streams, grants, special taxes, external fundraising and endowments. These

departments have created a semi-self supporting environment minimizing their dependence on general fund money to achieve some of their goals. Consequently, the budget review process seems to fall more lightly on the technology plans of these departments.

- **Certain departments have done well on their own**

  Departments which have vision and alternate sources of funds have been able to apply these extra funds to improve in areas, such as information technology, which are not otherwise sufficiently funded by the general fund. In addition, many City and County departments have successfully kept current with newer technology due to the availability of consistent funding and a vision which has led them to implement it successfully. Enterprise funded departments can also be relatively successful with information technology since they are not dependent on the competition for general fund resources.

- **ISD has broken out of the mainframe environment better than most similar-sized IT organizations**

  Most large organizations in both the public and private sectors developed data processing organizations in the 1960s and 70s based on mainframe systems and operations. A limiting factor to the implementation of new technology in an organization is the degree to which their data processing support staff is bound to that mainframe environment.

  ISD in San Francisco has taken a series of positive steps to decrease that limitation. The Division is responsible for City-wide PC training, widely reported as meeting the needs of departments. The Division has made a concerted effort to be involved in smaller-scale system development in both minicomputer and PC environments.

  Division management recognizes the need to provide planning and analysis services to meet the business as well as the technical needs of the City.

- **Computer Store**

  The EIPSC computer store was almost universally reported to be an effective and responsive way for departments to acquire needed equipment without the long delays that were typical before the inception of the store. The only issues to be raised were the costs, which might appear higher than could be obtained in discount stores. However, computers purchased through the computer store meet City standards and include a package of services which are felt by most to justify the increased cost. There is currently a concern that the new contract, effective later this year, will restrict the Computer Store's ability to continue functioning effectively based on new interpretations of purchasing regulations.

3.2.4. Areas where the City has been less successful

Like most large organizations, the City has faced a number of challenges and obstacles in the implementation of technology. The planning process uncovered a number of areas where the City could improve in its implementation, support and use of technology, including:

- **Policy level decision makers may not understand the applications of technology to the organization**

  During the focus groups, participants asserted that key individuals in departmental management, budget development and City policy making do not seem to accept technology as an integral part of the service process. As reflected in the budget process, if the decision makers of the City do not value technology as a tool, new systems will not be approved.

- **Inflexibility of older systems**

  The inflexibility of older systems does not allow data aggregation into meaningful management statistics. For instance, payroll history information, if available in a meaningful layout could help spot trends in costs and predict future budgets accurately. The Justice system does not support the development of meaningful statistics that can be useful for balancing workload, identifying liabilities, creating strategies and staffing plans. In addition, public access is reportedly restricted by the inability of the older systems to separate confidential information and allow access selectively. A higher risk of catastrophic failure of the older systems also exists due to the costs and, in some cases, difficulty in obtaining required maintenance and support.

- **Incomplete technical infrastructure**

  ISD is in the process of connecting departments to an E-mail system. However, many offices lack the basic infrastructure necessary to allow connection to E-mail and the sharing of information or access to remote systems. Infrastructure projects for technology lack the compelling budget persuasive power that would allow for their development. The difficulties cited in developing multi-departmental budgets also contribute to the lag in implementation of a City-wide area network.

- **Staffing**

  A series of issues were raised around staffing for technology. Departments report difficulties in competing with Silicon Valley for hiring and retaining highly qualified technical staff. Reasons identified as contributing to this included:

  - Inability to match salary/benefit offers
  - Inability to provide on-going training in new technology

- Civil Service and union rules regarding bumping rights and seniority can fill positions with inappropriate staff members
- Job classifications change slower than technology

Employees who are assigned to maintaining old systems have difficulty gaining and retaining skills for using more state of the art tools. In addition, when these employees terminate their employment with the City they are difficult to replace due to the lack of people with the skills and desire to work with the old technology and tools. Knowledge of key systems such as the courts and E-911 applications is held by one or two individuals which can leave the City at risk.

Departmental staff is also not seen as a City-wide resource. Staff members are often not provided on-going training, thus limiting their ability to cope with new technology and situations effectively. Employees frequently move from one department to another, but departments do not consider their employees as City employees with potential to use their skills elsewhere.

- **Purchasing procedures**

  The EIPSC process for approving technology purchases has been devalued by policy makers and is viewed as a rubber stamp. For this reason, individual departments make their case directly to the Mayor's office or the Board. In addition, the current procurement system is viewed as slow and bureaucratic in nature.

- **Personnel/Position Control Information**

  Many of the focus groups discussed their lack of personnel information as a management issue. Information specifically cited as difficult to obtain include seniority levels, bumping rights, and employee history. Many departments track and report their own personnel information due to the lack of a personnel system which reliably retains and updates employee information. Recent attempts by the Human Resources Department to address this issue have been unsuccessful in meeting departments' needs.

- **Interdepartmental communication / successes not shared**

  While the City does have successes in implementing information technology, these successes are not ordinarily shared with other departments. Several focus groups conducted during this project produced examples where one department had already solved a problem that another department was currently facing. The currently decentralized systems and decision making processes do not facilitate interdepartmental sharing. Additionally, successful implementations could function as models to support funding of additional projects.

3.3. Functional Areas: Systems in Progress and Issues

During the course of this project, KPMG facilitated a series of focus groups which were designed to bring together multiple departments with common service delivery paths, customers or specific information interests. Each of these groups discussed issues of particular concern to their area, as well as system implementation projects underway in that area. Specific results of these sessions are presented in this section.

3.3.1. Human Resources

The human resources functions of the City are spread among several organizations with specifically defined responsibilities:

- **Controller's PPSD** is responsible for the payroll system
- **Human Resources Department** is responsible for benefits, collective bargaining, selection, classification and employee relations
- **Retirement** is responsible for collecting, tracking and issuing retirement benefits
- **Various other departments** have responsibilities for portions of the hiring, tracking and termination processes

During our focus group session with these departments, the issue of lack of integration among the functions was deemed significant. Separate systems, offices and policies deal with various aspects of the hiring, retention, promotion, payment, discipline and termination processes. The departments report that the City is at risk because departments other than Human Resources are maintaining benefit and retirement information without the oversight of the Human Resources Department. Their ability to ensure compliance with relevant statutes and codes becomes difficult due to the lack of coordination and cooperation.

In reality, the group indicated, there is no City-wide human resources system from a management or organizational perspective, not just from a technology perspective. The City does not maintain a central repository of records for personnel information. There is no mechanism for gauging productivity.

Within this environment, the computer systems serving the human resources area were described as:

- **Currently in survival mode**

  The current human resources system is not meeting the goals of HRD. The Department's business has changed dramatically since its inception and systems are being defined and redefined as the business changes. A metaphor for the current process is: "Building a ship while at sea."

The payroll system is a minimal system designed mainly to issue checks, and cannot meet current expectations. PPSD reports a significant manual effort required each pay period to get payroll checks out. Departments report a significant lack of management information available from payroll, especially in the areas of project costing and cost accounting in general. The current system cannot store payroll history on-line. Only two pay periods are on the computers and the rest is on microfiche which makes retrieval labor intensive and difficult. City policy makers do not get the information they need in order to make necessary decisions including budget, project management, layoff, hiring and other issues reliant on accurate and timely payroll and personnel information.

Some departments are operating "shadow" payroll costing systems to develop needed information internally, magnifying the biweekly effort to issue checks accurately.

- **Projects in progress**

Meeting challenges of collective bargaining has amplified the inflexibility of the current payroll system. The current payroll system was implemented as a check processing system. In response, the Controller's Office has initiated a project to distribute a rules based time entry system which will operate on PCs in user departments. The pilot project is currently underway. Collective bargaining continues to be a challenge as each union contract covers multiple departments and most departments have employees represented by multiple unions. Rules are complex and are constantly changing, making manual efforts to keep up nearly impossible, and requiring a high degree of flexibility and a high level of maintenance for automated support systems.

The Retirement System is in the process of implementing a new, client-server based system to generate retirement checks. They currently have an automated feed of information from the payroll system to update their accounts for withheld retirement contributions.

In spite of documented problems, the departments in this area report a lack of urgency on the part of the City to address their systems issues since it appears as if systems are working. The exception is the Human Resources system, where the old system is severely inadequate and the new system has not been implemented successfully. In reality, HR runs at least four or more distinct systems which are not integrated and which reflect their old organizational structure. There is the feeling that, as long as payroll checks go out accurately every pay period, little attention will be paid to the efforts required to make that happen and the loss of valuable information in the process.

3.3.2. Financial Systems (ON-LINE FAMIS)

One of the largest system implementations currently in progress is ON-LINE FAMIS, the replacement financial system. Included in this system are the on-line purchasing (ADPICS), accounting and accounts payable functions.

Issues surrounding the old system that are expected to be addressed as the FAMIS implementation project is completed included:

- **Most departments are still running shadow accounting systems**

  The old finance system's lack of ability to provide departments with the information they need to track their budgets and projects led most departments to keep their own sets of books. Some of the departments have gone as far as to purchase or develop their own sub-systems. As departments become comfortable with the capabilities of the new system, they are "turning off" their individual systems and relying on the central database.

- **Reconciliation issues**

  The old finance system did not provide the controls needed to reconcile as appropriate. For this reason, among others, the reliability of the information has been questioned. The staff time it took the City to reconcile manually costs the City both directly and in availability lost for productive tasks. In addition, manual reconciliation adds to the City's paper dependency.

The ongoing challenge of implementing FAMIS is to develop and maintain organizational confidence in the system as it goes thorough implementation. Once departments come to expect timely and accurate information from the system, they will feel comfortable in abandoning redundant financial tracking systems.

A goal of implementing FAMIS is to distribute the responsibility for data entry of purchasing and payment authorizations and to provide on line access to budget status information. It is anticipated that full implementation of the new systems will greatly reduce the City's paper flow.

The current implementation of FAMIS is specifically planned to provide a baseline for financial information, centrally managed and controlled, but entered in a distributed fashion. It was not and is not intended to be a complete long term solution, but rather is the first step in implementing a comprehensive financial system. Features such as full management reporting, mission-driven budgeting and performance measurements still need to be developed.

A system based on mainframe technology was selected due to lack of a City-wide infrastructure and the availability of mature, tested systems. Implementing a City-wide client-server financial system would require a completed network infrastructure or would fail to meet the goal of providing departmental responsibility for their financial information.

3.3.3. Property/Land Use

The current property system, tying the Assessor, Tax Collector and Auditor's Offices in the tracking of property values, ownership and taxes, has been identified as seriously out of date and in need of replacement. A prior project to develop a property system internally was canceled in midstream due to funding issues.

An RFP for a new system has been issued by a committee headed by the Assessor's Office. The budget for the project was set up interdepartmentally in order to avoid some of the problems that plagued the previous property system project.

Once a system is selected, it will face the same type of new system challenges expected in such a project, requiring significant project management, testing, and careful consideration of the policies and procedures to be employed. Other issues that have arisen regarding this project include:

- **The need to expand beyond the core property tax group.**

  Many other offices and departments have direct or indirect property system requirements which will have to be accommodated as the system is put into place.

- **Integration with GIS.**

  Property ownership, parcel numbers and other information contained on the new system's database will make up key information layers in the GIS in the future.

3.3.4. Geographic Information Systems (GIS)

The goal of the current GIS project is to provide a City-wide base map, currently in Public Works, which can be used by other departments. A GIS prototype system is underway in partnership with ISD. The project was funded at about $1 million for the first four phases. The current plan is to transfer the base maps to ISD for ongoing maintenance, and to allow departments to build their own data layers using the base maps.

Some City departments are not technologically ready to use a GIS at this time. It will require acquisition of current technology hardware, software and the sufficient network infrastructure in order for departments to be fully ready to use GIS. Departments with mapping requirements outside City limits, most notably the Airport and Public Utilities,

feel they have not been fully included in this project. The Airport has plans underway to construct their own local GIS for facilities and infrastructure at that location.

The lack of planning and high expectations for the system can be summed in the following statement: "Many pray for it, few pay for it, and fewer still can contribute skilled resources to support it". This comment, from the GIS focus group session, was an indication that many City departments can see that their needs could be met by a well implemented GIS, but the ability and priority to assist in funding it are not so widespread, and the comprehension of the staff time, ability and effort required to establish and maintain a successful system is lacking.

3.3.5. Public Outreach/Internet access

Representatives of the public and the media who participated in the focus group for public access issues characterized access to information in the current environment as difficult, slow and non-responsive. Obvious public information such as Board and Commission meeting schedules, agendas and the results of meetings are not available in electronic form. Requests for other information under the Sunshine Ordinance or the Public Records Act have been met with delays and difficulties in obtaining requested information.

The City currently has several Internet projects underway. Some departments, most notably the Library, have information provision to the public as a key part of their operating mission. The Library has established its own network to allow departments and outside agencies who provide various social services to update a database available to the public. The Library has also established an Internet "home page" which allows computer users access to a menu of information maintained by the Library.

The stated long term goal of the City is for ISD to provide a central point for Internet service provision for all departments. ISD has hired an Internet expert to create this central point of access and is moving "full speed" toward implementation.

The main issue preventing easier access to information is that the City network does not provide an adequate infrastructure to interconnect departments. Even gathering and collating meeting agendas and minutes would be a manual task of collecting diskettes and loading them on to a central system on a regular and timely basis.

3.3.6. Telecommunications

Telecommunications responsibilities in the City are divided between DET, with responsibility for telephone and radio communications, and ISD, with responsibility for computer networking. Most departments are operating on internal local area networks. Interconnection of departments is proceeding as the FAMIS, purchasing (ADPICS) and City-wide E-mail projects proceed.

Major issues for telecommunications in the City include:

- **Lack of fiber infrastructure**
- **Lack of coordination of departmental networks / standards**
- **E-mail access from non-centrally located offices**
- **Cabling all City buildings**

Note: The City Hall cabling project has now been funded by bond issue approved during the November election. The City Hall telecommunications project has identified a telecommunications strategy designed to transform City Hall into a "smart building" facilitating inter-office and inter-departmental communication.

3.3.7. Public Safety

Recognized by the City and its citizens, the public safety system is at a crisis point. The public safety focus group characterized their systems as obsolete, broken and in dire need of replacement. The City's *de facto* policy of deferred maintenance is cited as resulting in equipment being used far beyond its useful life. Furthermore, the departments report a lack of basic resources necessary to make effective use of what technology is available. For example, police officers reported bringing personal computers from home in order to have basic equipment needed to get their jobs done effectively.

Unintentional movement away from integrated systems is being forced by budget policies. For example, the Sheriff's jail system had reached a point of necessary replacement. The lack of budget and policy support promoting continuance of integrated systems meant that the Sheriff had little choice but to acquire a stand-alone system and independent funding to meet the Department's needs. Furthermore, with the new police records system, it is possible that the critical mass required to make the integrated justice system viable will be lost.

The replacement of the computer-aided dispatch (CAD) system is now underway as a part of the joint communications center project. The issues of when the replacement will take place and how to manage and fund the project interdepartmentally are still being discussed. Given the significant problems of the current system, several of the City' public safety departments have elected to install an interim system to ensure continued operations during the extensive project of requirements definition, vendor selection, installation and customization of the eventual complete system.

3.3.8. Justice

The Justice area is served by a mainframe-based integrated system known as the Court Management system (CMS). In addition to the trial courts, the system serves the District Attorney, Public Defender, Police, Sheriff, and Probation departments. CMS has been

installed in the County for 20 years. Additional systems operating in the Wang environment serve a number of areas in the courts.

Issues related to CMS include an extremely obsolete architecture and system development tools, which have become critical maintenance issues. Finding staff that are capable of maintaining the system has become nearly impossible. The architecture of the system, using "flat files" rather than a database, severely limits the users' ability to access information and does not allow the use of sophisticated analysis or report generation tools. These issues combine to make the system extremely inflexible and literally deteriorating.

Previous efforts to renovate the system have been unsuccessful, reportedly due to lack of funding and high-level sponsorship. The Justice focus group reached consensus on a few critical points regarding the future of CMS:

- **Movement away from integrated systems has become a trend**

  Departments recognize that it is not currently politically possible to replace the entire, integrated set of systems. Consequently, they are taking action to assure their individual operational integrity by requesting and implementing stand-alone systems. The result may mean that the overall usefulness of the systems will be greatly diminished.

- **Lack of urgency because system still works**

  The group felt that system replacement only occurs in crisis mode, citing the CAD and property systems as examples. Since the courts' system has not loudly and publicly failed, it seems to have a low priority for replacement.

3.3.9. General Administration - Smaller Departments and Commissions

The widely diverse services provided by the City of San Francisco has led to the creation of a number of small departments, including the staff of various boards, commissions and offices. These departments report that they are uniquely disadvantaged when it comes to technology, in that they often do not have either the budget or the technical expertise to implement modern systems.

Major issues for these smaller departments, in addition to budgeting for technology, include:

- **Sharing information**

Many of the smaller departments share clients and/or portions of the service delivery path with other small departments and, in some cases, with larger departments. Issues revolving around the sharing of service delivery information revolve around knowing:

  - *Who has the information*
  - *Where it is located*
  - *How it can be accessed*
  - *Confidentiality requirements of the department generating/storing that information*

Currently, there is no clearinghouse where availability of information can be determined.

- **Vision and understanding of technology.**

Some smaller departments are unclear on the business uses of technology. Their lack of understanding prohibits them from establishing a vision for technology which would help them achieve business goals and objectives. Many of these smaller departments do not conduct regular business planning activities due to lack of knowledge and/or resources.

Based on their inability to budget for more modern systems, many of these departments are still using Wang systems. These systems have relatively high maintenance requirements, and their architecture is such that it is difficult to integrate them into modern local area networks.

3.3.10. Recreation/Arts/Culture/Library

The City of San Francisco has a well-deserved reputation as a center for culture and the arts. Multiple museums and grant programs complement a large municipal library system in making this reputation a reality. The departments in this area reported a number of issues related to technology which have led to sub-optimal use of systems in some cases. Major issues pointed out include:

- **Multiple funding streams and missions**

  Funding streams with strings attached and missions which in some cases overlap often preclude or make cooperation among these organizations difficult. Many of the cultural organizations have private foundations and donations in addition to City/County funding.

- **Lack of City-wide communication about technology available services and support.**

  Museums and granting agencies were often unaware of services such as the PC Store or the availability of technical support from ISD for their PCs and networks.

- **Lack of inter-museum communication**

  Museums especially seemed to be almost competing rather than cooperating in the implementation of new methodologies or technology.

- **Technophobia**

  Some departments reported that their management is not knowledgeable about or does not trust computer technology as being able to effectively support their missions.

- **Lack of integration due to departmental boundary issues**

  The Library has built an excellent system including Internet access and on-line cataloging of collections. Departmental boundary issues were cited as an impediment to allowing the museums to use these systems for similar projects within their purview.

- **Obsolete Equipment**

  Certain mission critical applications for Recreation and Parks are running on obsolete Wang equipment which leaves them vulnerable to catastrophic failure and faced with ever increasing costs for maintenance.

3.3.11. Capital Projects

Multiple departments in the City (e.g. Public Works, Airport, Harbor, Muni, Utilities, Recreation and Parks) manage major capital projects as a normal part of their service delivery function. These departments meet regularly as a part of the City's capital budgeting process. These departments report that they have been independently seeking automated solutions to support capital project management. Issues specific to the project management area included:

- **Allocation and job/project costing**

  Departments indicate that the payroll system is ineffective in providing information on the true cost of projects. Consequently, each department is tracking personnel costs on their own to be able to analyze current project budget status information. Departments are hopeful that the new ON-LINE FAMIS system will enable them to conduct project accounting without the shadow systems they have used in the past.

- **Duplication of effort due to non-integration**

  Tracking of payroll, contract payments and other project related issues has led to additional resource requirements for updating multiple manual and automated systems.

- **Reconciliation issues**

  The maintenance of shadow bookkeeping and payroll systems generates the additional requirement to reconcile those systems with the City's books. The ON-LINE FAMIS implementation should address some of these issues. The PC front end for payroll may help address additional reconciliation problems.

- **Lack of tools to manage schedules and budgets**

  The City does not have a standard project management tool. Each department has either purchased or developed its own system to manage the complex scheduling and budget issues involved in capital projects. Without City-wide standards, comparison of projects or determination of relative status among projects is difficult.

3.3.12. Health and Human Services

The area of Health and Human Services in the City includes all areas of public health and welfare programs. The commonality of these programs is evident in the level of shared clientele. These programs also share uncertainty in the short-term future and dramatic changes ahead in programs, services and funding sources.

Currently, the direction set by policy makers at all levels of government is for a redefinition of government's role in the human services arena, and, more specifically, the role each level of government will play in the future. If Washington's current direction toward releasing responsibility to the states is fulfilled, and if Sacramento further pushes authority out to the service provision agencies, the City may find itself with more flexible definitions of the programs and services it must provide.

Funding sources have also been called into question. The issue in Washington is not whether to cut the budget for human services, but how much to cut. Recognizing the increasing level of service demand while coping with decreasing funding, the departments in this area are working toward innovative solutions including development of a managed care organization and policies to evaluate cost-effectiveness of service delivery. The departments in this area report a need for technology to monitor costs and track service delivery.

The issues of data confidentiality and systems mandated by the State have a dramatic impact in this area in terms of the ability of these departments to share meaningful information. State mandated systems can require implementations outside City standards and not permit development of the transparent technology envisioned by the City.

The largest project in progress in this area is the SMS system implementation for the Public Health Department. San Francisco General Hospital will serve as the initial site for SMS to integrate its modules into a comprehensive managed care system. The Department, in choosing SMS, has effectively outsourced its mainframe operations as the system will run on the vendor's computer facilities and will be accessed via telecommunications lines.

4. Information Technology Vision

A plan with a realistic chance for success starts with the development of a common vision. The vision acts as the proverbial "pot of gold" which keeps the process "following the rainbow" in order to complete the planned objectives and achieve the goals laid out in the plan. Knowing what the vision or desired outcome of the process is will help keep the process on course.

Specifically for the City and County of San Francisco, a shared vision will help achieve their desired end result which must include connecting diverse systems in a logical fashion. Without the shared vision, departments will continue to rely on individual short term projects which will perpetuate the "islands of automation" which currently exist. A shared vision will serve as the end result upon which all departments agree and work.

The Supervisors interviewed during this planning project indicated that they would support systems that improve the services the City provides and/or save money for the organization. Their vision is not to turn San Francisco into a showcase for new technology, but rather to apply technology in a planned, controlled fashion to meet the business challenges the City is facing.

Focus groups, familiar with the policy-level vision described above, helped to define the vision for technology that is the centerpiece of this plan. The City's vision will be achieved when the following events take place:

- **Technology as a necessary enabling tool**

  The City understands and welcomes new technology as a critical factor in its ability to provide cost-effective, high quality services to its constituents. Technology is viewed as essential to the business of the City; departmental plans and visions include technology as a matter of course. The City recognizes the risk inherent in not planning for and heading toward a future where its human resources are leveraged through increasingly sophisticated technology. The City intends to use technology to increase productivity, improve the effectiveness of services and allow its managers and policy makers to make informed decisions and track the results of those decisions.

- **A City-wide business plan**

  Overall business priorities and goals are set in a business plan based on the consensus of policy makers and the management team of the City. The objectives and strategies of the plan include the manner in which technology will be used to ensure the plan's success and the location of revenue sources for funding the necessary programs and projects. Incorporating technology as part of a business plan, developed and adopted by management, will help develop management sponsorship critical to success in changing organizational direction. While a City-

wide business plan is a long term goal, the City will move forward by developing plans for functional areas with common service and delivery requirements.

- **Transparent technology and the Interconnected City**

  Transparent technology is defined as the ability to access needed information without thinking in technical terms. All City departments have the ability to communicate seamlessly within the parameters of security and confidentiality. The public has the ability to access information and documents easily, and can interact with systems simply and effectively, thereby increasing participation while decreasing costs. The vision is to use technology without having to know how it works. Users, both employees and the public, need only to be trained on how to access information and how to use it in order to achieve their ultimate goals. They can access all information required and related to their business needs and responsibilities.

- **Coordinated strategy for IT**

  A coordinated strategy is in place to achieve the City's short and long term goals. The City adopts common standards, priorities and methods for sharing successes. Considering the differences in approach, knowledge and resources available in each department, interviews and focus groups promote a strategy in which interdepartmental coordination of information technology is a cornerstone. Standards and strategies are flexible and updated in anticipation of future growth and directions in technology.

- **Universal baseline for IT technology and staffing**

  A universal baseline is adopted in which the workforce is trained in and equipped for the use of technology. This baseline creates an environment in which all departments receive a defined level of support, training and technology to assist them in achieving their business goals. A baseline for information technology provides each City knowledge worker with the tools and abilities they need to work productively. Managers are brought to a level of awareness, understanding and commitment to technology and incorporate technology as an enabling tool in their business plans and decisions.

- **Measurable performance improvement through application systems**

  The effectiveness of the delivery of City services is quantifiably improved by new technologies. Systems are easy to use, user-friendly and provide rapid response time. Systems are designed to be easily maintained, and use industry-standard tools to improve responsiveness of the support effort. Systems are expandable and have the ability to be enhanced and maintained in a cost effective manner in order to keep current with ever-changing requirements and technology. Application systems provide flexible analysis and reporting of information. In meeting the

vision of an Interconnected City, systems are easily integrated into the overall information infrastructure as it is built.

- **One-stop shop for technology**

  There is a single place in the organization for information, support and advice on any technology needs. The user can state their need or challenge in business terms and have the resources available to help define solutions and apply appropriate technology. In addition, the City has someone whose function is to be continually aware of new technology and to assess the potential impact new technology may have on the organization. Users can concentrate on the "what" of a problem, not the "how" of the solution, knowing that appropriate technology can and will be applied to provide optimal results.

- **Technical resources**

  The City has personnel available with skills and knowledge of current technology and the ability to apply it appropriately. These technical resources guide the selection and implementation of technology to be used to best achieve the objectives and goals of the business plan. The City can recruit and retain top quality personnel by providing rewarding career paths with diverse technical, operational and managerial options.

  The City also has sufficient capacity and expandability in its computer systems and networks to meet the ever increasing demand for services and support the increasing reliance on technology.

  Tools used to develop, maintain and operate the City's systems are modern, reliable and reflect the current state of the art, and the City's technical staff are appropriately trained and skilled in their use.

- **Timely, flexible and responsive planning and procurement processes**

  Users can plan for, define, acquire and implement technology in a timely, flexible and responsive manner. The overall process is streamlined to avoid unnecessary delays and optimize the solutions available to City departments. Legal requirements are evaluated to determine their applicability and usefulness in the process. The procurement process continues to provide widespread access to potential vendors and yet allows flexibility to make innovative solutions available to the City. Most of all, the process takes the real business needs of the City into account, assuring that the most cost-effective long term business solutions are acquired in a timely fashion.

5. Information Technology Strategies

The City and County will need to develop and adhere to strategies for achieving their vision. These strategies will define the approach taken for planning, staffing, training, selecting, acquiring and implementing technology to successfully achieve the vision for technology presented in this plan.

In the management workshop held at the conclusion of this project, the City's management team agreed on the need for a series of strategies to move forward in the use of technology. Among these strategies were the following:

5.1. Organizational Strategy for Technology

The City and County as a whole must embrace technology as a critical part of their future. Budget cutbacks, organizational restructuring and service delivery demands cannot be met by maintaining the current service delivery channels and processes. As in private sector organizations feeling the impact of budgetary shortfalls, technology must be seen as an operating necessity to enable departments to meet the public's expectations. The organization must leverage well planned and managed technology in order to meet these challenges. Issues that must be addressed in the organization include:

- **Management sponsorship**

  Management must support, understand and require information technology as an integral part of the service delivery. Departmental business plans must include leveraging technology to maximize productivity and improve service effectiveness. Each major technology project must be sponsored by management at the department head level. Budgets for both new systems and maintenance must be defended as critical for long-term success of each department.

- **Technology advocacy**

  Living in a political organization, the sponsors of technological change must take it upon themselves to communicate the need for technology and the underlying business case to policy-level executives.

- **Strategic plan for information technology**

  The strategic plan provides a formal document which spells out in detail the strategies the City should follow in order to achieve their stated vision. The Strategic Plan for Information Technology must be formally adopted by the City at the policy level. The plan should be reviewed semiannually and updated on a scheduled basis to ensure that the vision and strategies change as the business needs and future direction of the organization change.

- **Roll-out for new technology**

  New standards, policies and City-wide systems should be implemented in a planned, phased manner to allow user staff appropriate training and support while also allowing support resources sufficient time to prepare for their new challenges.

- **Performance based measurements**

  The City needs to orient its business strategy toward measurable performance criteria. The delivery of City services can be evaluated and improved by selecting appropriate measurements and tracking the impact of changes such as new systems on the effectiveness and efficiency of those services.

  In developing a project plan for a new system, the City must first determine success criteria based on the effectiveness and efficiency of their organization. Process, procedural and organizational changes may accompany the system implementation as part of an overall strategy to enhance the service delivery mechanism. Tracking changes in performance measurements will provide the ability to see where projects have been successful and where improvements still need to be made.

  Once success is achieved, it is necessary to make sure that the success story is told. Success stories will pave the path for others to be more comfortable with risk and change that is inherent in the automation process.

- **Flexible standards and policies to assure accessibility**

  The City must recognize that information is one of its most critical resources, and the appropriate management of that resource, from a City-wide perspective, is critical to meeting future challenges. Standards and policies for providing access to information in new systems need to be defined, at both a management and technical level. These standards and policies will determine the minimal requirements for new system acquisition and/or development. Applying these minimal requirements will ensure the ability of the City to integrate information from multiple departments in a logical fashion as dictated by business requirements.

- **Equipment, software and training guidelines and minimums for employees**

  The City of the future will require a workforce that is computer literate and can make effective use of office automation and applications systems. As the City cannot hire a knowledge worker without planning for desk, lighting, office supplies and a telephone, so must the City plan to provide a computer, network access, and standard software tools. The City will be moving toward an environment where information access and rapid communication are a normal part of doing business and providing services. As a worker cannot be expected to know how to use all City standard tools at the time of hire, training in the use of standard tools should

be a part of the orientation process. As the City's information infrastructure grows and changes, ongoing training for all knowledge workers in the City should be a part of the personnel plan for each department.

- **System security and data confidentiality**

  Security and confidentiality must be taken into consideration as systems are shared and access to information becomes more open. Confidentiality rules are established by law, by program policy and by individual departmental or functional procedure. Confidentiality requirements should be reviewed during the planning phase for each new system based on the spirit of the Sunshine Ordinance making City information available to the public. Confidentiality reviews should address accessibility in layers, including direct service providers, program management, departmental management, related departments/functions, City policy makers, the media and the public.

  Security policies should be strictly enforced, preventing unauthorized access to any City system. The growth of the Internet makes the development of policies and standards for outside access, information provision and staff use of the Internet a critical issue. The City must take steps to be certain that its systems are not subject to damage from malicious users or software viruses while still providing information to an ever increasing on-line audience.

- **Public access and public outreach**

  Within reasonable and legal confidentiality guidelines, the public access strategy of the City should be to comply with the intent of the Sunshine Ordinance by making the maximum possible amount of information available. The City needs to provide flexible and timely access to information by the public and the media. The growth of the Internet and the widespread availability of personal computers to the public makes this medium the logical choice for a public access point. Universality of access needs to be addressed by a coordinated strategy involving the library, other City-operated facilities, community college, universities and public and private schools.

  As part of a coordinated strategy to improve the accessibility of City services, as well as decreasing the cost of providing those services, the use of interactive systems available to the public should be explored. Public access via telephone, Internet, kiosk or workstations in public places can allow direct access to applications for permits, health and welfare services, educational and recreational opportunities as well as payment of fees and bills.

5.2. Information Technology Goverenance Stategy

The information technology governance strategy refers to the manner in which the planning for and implementation of information technology will be managed and approved.

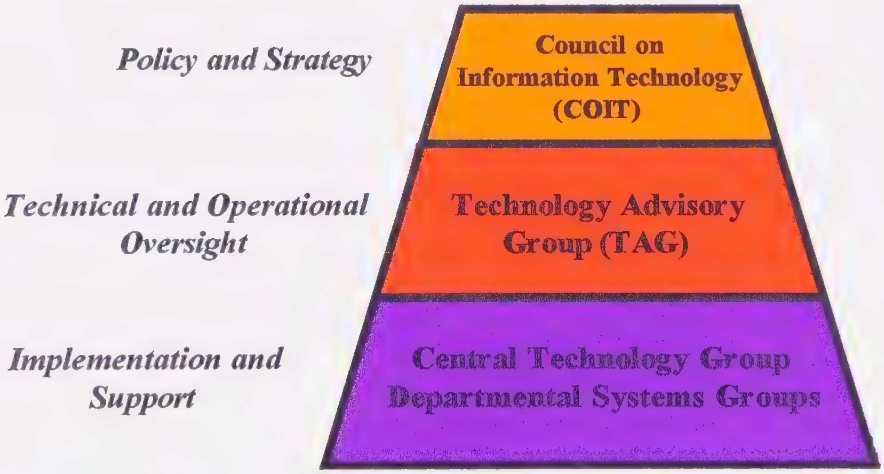
- **3 Tiered Approach**

  The City has developed a three tiered strategic approach to technology governance. Each of the three tiers will be responsible for a specific level of technology governance for which they are best suited.

  Clearly defined roles and responsibilities need to be established in terms of technology related groups and individuals and their piece of the overall technology puzzle. Each group and individual will have specific roles and responsibilities for which they will be accountable. The three tiers, most simply stated, are:

- Policy level management
- Technical and operational oversight
- Implementation (major project) management

City and County of San Francisco
Technology Governance Structure



These three levels interact with each other in defining and controlling the direction, role and level of technology both within the organization and in the public at large. The strategy is to provide sufficient participation to ensure City-wide vision and prioritization while still allowing flexibility for departments to operate effectively.

The three levels in the governance strategy are represented by the following proposed organizations:

- **Council on Information Technology (COIT)**

  The Council on Information Technology becomes the advocate and sponsor of technology. It is COIT's responsibility to set City policy and develop and enhance the City-wide view of technology. Their membership should include policy makers from both the Board of Supervisors and the Mayor's Office, as well as a cross-section of department heads representing the City's major functions. Potentially, adding a member to represent the public could provide perspective on issues of citizen participation and public access.

- **Technology Advisory Group**

  The Technology Advisory Group serves as the technology advisory group to the Council on Information Technology. It is expected to function at the technical and managerial level of the current EIPSC organization. The new Technology Advisory Group will be seen as a facilitator and enabler as opposed to an obstruction or obstacle to the accomplishment of technology projects. Among the key roles of the Technology Advisory Group are:

  - *Project and plan review*
  - *Technology standards development*
  - *Identification of system integration and data sharing opportunities*
  - *Technical policy recommendations*

- **Major Projects**

  Major multi-departmental projects need to be coordinated at the department head level. Specific committees consisting of the department heads of affected departments should be established as policy steering committees in charge of those projects. A working committee, consisting of key users from each department, will meet on a regular basis to review the progress of the project and deal with implementation and prioritization issues as they arise. The working committee will provide a feasibility analysis prior to beginning the project and periodic status reports once the project gets started to the Council on IT.

  Each major system should have a single Project Manager. That person must be empowered to make day-to-day decisions, track schedules and budgets, and direct resources where needed. The Project Manager will implement the project plan as established by the steering committee, and will report to the working committee on a regular basis.

  Cooperative partnerships should be established in which departments with similar information systems needs work together to eliminate duplication of effort and to

share resources effectively. Partnerships will be the first step in achieving the information sharing and connectivity goals of the City.

5.3. City Wide Service Delivery Strategy

The information technology service delivery strategy can be defined as the ongoing provision of technology support and services. This service delivery can be provided by a combination of central and distributed technical resources which work in a cooperative manner.

- **Centralized coordination and infrastructure**

  Achieving the vision of transparent technology and the Interconnected City requires centralized coordination of technology and infrastructure. Given the diverse business and service requirements of the various business units of the City, centralized control must provide sufficient flexibility to allow each department to conduct its business effectively. While ideally all systems should meet City standards, COIT will have to determine a realistic policy for allowing exceptions when business requirements demand them.

- **Central Technology Group**

  The Central Technology Group will be responsible for support and services for all systems which are considered part of the centralized system architecture. Toward that end, the City has decided to merge the telecommunications and information systems services groups into a single technology organization. In addition to supporting technical hardware and infrastructure, this group will be available to provide consulting and support services to all departments in the City on an as-needed basis. Although resources are available centrally, departments should have the ability to seek resources outside the central structure to meet specific business requirements.

  The combination of telecommunications and automation services into a single organization is a trend among many organizations of similar size and scope to the City. Voice and data are now one and the same with much of new technology. Voice mail is simply voice information stored on a computer. Fiber networks carry both voice and data. The use of the Internet, and expanding use of "Intranets" imply telecommunications support for all data processing users, with voice, image, graphic and video capabilities available. 800 MHz and other radio channels routinely carry both voice and data, available to computers and other equipment in City vehicles and hand-carried devices. GIS and vehicle location systems are routinely supported by radio communication to Global Positioning Satellites. There is no longer a logical business reason to separate the two functions. The Central Technology Group should assume responsibilities for communications as well as computer systems to allow the City to take full advantage of these new

technologies. The Central Technology Group should undertake an organizational assessment and re-design to assure that the merger is successful and the vision of integrated technology is achieved.

A critical function of the Central Technology Group is to be the organizational advisor for new technologies and implementation strategies. As such, they will gather and disseminate information on the technology activities of all departments as well as advances in the industry as a whole. This information should include computer systems, networks, telecommunications, the Internet, and advances in other technology areas that may have an impact on the City or its departments.

The Central Technology Group will include of a pool of resources which will be available for support and services on an as needed basis. They should establish service level contracts with City operating departments to spell out expectations, charges to the departments and provide a method of ongoing evaluation of the success of the Group.

As the level of resources and equipment required in the Central Technology Group will be based on customer demand from City departments and offices, a new budget process needs to be developed to allow the Central Technology Group to plan to provide appropriate resources at sustainable levels. Departmental input into the budget and staffing levels of the Central Technology Group will be critical if the Group is to support departments at the level of their expectations. To allow the Central Technology Group to provide an appropriate, variable level of resources, the City must develop flexible staffing policies, potentially including the use of temporary employees and/or contractors to smooth out staffing demand levels.

- **Departmental Systems Groups**

  The Departmental Systems Groups can be responsible for support and services for systems which are considered part of the decentralized system architecture, including the decentralized portions of distributed systems. Any systems that belong to and are used by only one department can be supported by individual departmental systems personnel. The group consists of staff members who are employed by the departments rather than a centralized support group. Departments have the option to locate computers in the central data center, relieving them of operational responsibility.

- **Relationship between the two groups**

  Although the above two groups have unique responsibilities they do interact and have an oversight relationship. The reporting relationship consist of the following:

  - The Central Technology Group provides system quality assurance and technical staff review of Departmental Systems Groups.

- The Departmental System Group members are given promotional opportunities for advancement to the Central Technology Group.
- The Central Technology Group receives direction from the Council on Information Technology
- The Central Technology Group recommends standards to the Technology Advisory Group, and enforces them once they are adopted.

5.4. Human Resource Strategy

The City's human resource strategy must, of necessity, have two components: a strategy for the technical staff and one for the City as a whole.

By providing rewarding career paths and the opportunity for continued learning, the City can build a group of resources which has knowledge and the skill set necessary to not only to maintain current systems but also to effectively help implement new technology. Rapidly changing technology makes it necessary that the roles and job descriptions of technical resources be flexible. Technical staff needs the training, knowledge and flexibility to remain current with rapidly changing technology. The City already has many positions with mandatory training requirements (public safety officers, assessors, CPAs, etc.). It is critical that ongoing training become a requirement of each technical staff position, with funding for training included as an ordinary part of the personnel budget.

The City has technical staff in many departments beyond the Central Technology Group. Retention of quality personnel can be enhanced by assuring ease of transfer among and between these groups, allowing technical staff the flexibility to pursue careers whose goals are technical, business or managerial in nature.

The vision of a baseline for technology carries many human resources implications for City staff. Once computers become as ubiquitous as telephones, the City must be able to assume that its staff is capable of using the provided equipment to meet business objectives. Training in the use of baseline technology should be a standard business practice in each department. Consideration should be given to the skill sets of applicants during the hiring process.

5.5. Funding Strategy

The funding strategy must be one that allows the City's projects to be consistently, adequately and fairly funded without regard to boundaries and complexity. In order for this strategy to work the following must be considered:

- **Integrate technology into the service delivery model**

  Once technology is seen as necessary to provide the level of service demanded by the public, the likelihood that it will be cut from the budget will decrease. If technology is isolated and seen as independent of service delivery, it can be incorrectly seen as easy to cut out of the budget without impacting operational effectiveness.

- **Develop benchmark for technology investment**

  The City can establish peer organizations in both the public and private sector for comparison of levels of investment in technology. Once established, such a benchmark process can provide a standard to allow long-term planning and determine if the City is keeping pace with other comparable service provision organizations.

- **Develop a rational multi-year budgeting process**

  A rational budgeting process for major technology projects needs to be developed. Major technology projects require consistency of funding over the life of the project, often several years in duration. Projects that are difficult to fund, such as those involving multiple departments, should be established as a separate budget item. The budget process should allow for the easy budgeting and tracking of multi-departmental projects to enhance the project manager's ability to identify problem areas, and thus enhance accountability. The resultant budget should provide a Capital Improvement Plan for Technology for the City.

  Multi-departmental projects should be funded in such a way that individual participating departments do not have veto authority over approved projects.

- **Develop a plan for update and replacement of technology**

  Technology is changing at a rapid rate. For example, a generation of PCs is now less than three years in duration. The service delivery environment changes with each new rule out of Washington or Sacramento, and with each change in the demographics of the City. Application systems themselves change the questions and challenges faced by departments. The City can never assume that systems are "complete" or that investments, once made, are "enough". Like any other piece of

equipment or infrastructure, the City must develop both a maintenance and a replacement plan for technology.

- **Capitalize on advancements made by well funded departments**

  Although the General Fund will always be limited, departments not exclusively dependent on the General Fund can apply those resources toward acquiring and enhancing technology meeting their needs. The City needs to allow and encourage General Fund departments to capitalize on the advancements made by those departments which have the funds to advance technologically, and to develop a strategy where needed infrastructure and centralized system components can be implemented by externally funded agencies.

- **Develop Central Technology Group budget based on service agreements**

  Service agreements allow departments to control their technology expenditures and to determine the level of support or consulting services appropriate to their business needs. They also provide a mechanism for the Central Technology Group to determine required resource levels on an annual basis. Perhaps more importantly, the use of service agreements allows the Central Technology Group to be continually benchmarked against external service providers, helping to maintain the quality and cost-effectiveness of provided services.

5.6. Systems Implementation Strategy

There are certain implementation strategies which can be adopted to ensure economically sound implementation decisions. Installing a new system, in itself, will not ensure that the system will be beneficial and meet the cost savings goals of each project. The ultimate goal is to achieve a point at which new systems are stable when implemented thus people are willing to move to new systems. The following strategies will assist in the successful implementation of systems:

- **Business needs focus**

  The process of planning and acquiring new technology will be business driven, not technology driven. Clearly defined service delivery requirements, quantified by performance objectives, will be the primary criterion for defining technology projects and selecting products and services.

- **Integrating technology and service delivery**

  The City's departments will commit to reviewing and revising their practices and policies to best leverage technology investments in improving service delivery. The departments can thus define the processes and underlying technology support that will allow them to deliver their services as effectively and efficiently as possible.

- **Buy versus build decision**

  Custom system development can be very expensive and potentially high risk. Maintenance of custom systems has implications for staffing of technical resources which must be considered. Although the City will always want systems which best fit their needs, they need to recognize that they are not always unique. Systems which were developed by other organizations may have all or most of the features needed by the City and can be purchased at reasonable rates. The customization for those systems to meet additional, critical requirements may be less expensive and risky than developing a new system. The decision to build a system needs to be based on a true cost-benefit analysis, factoring in the risks of development and costs of needed customization.

- **Long term support and maintenance costs**

  Applications systems will need long term support and maintenance to provide for ongoing changes in business process and service delivery. Additional long term costs will derive from system operations, including backup and recovery procedures. These support and maintenance costs need to be included as part of the budget when the decision is being made to implement the system.

- **Attention to the system development life cycle**

  Like any other equipment, applications systems have a point of obsolescence. Implementation of a new system is not a permanent solution to business problems. Business issues change, technology becomes obsolete, and on-going maintenance becomes more difficult. The City needs to recognize as part of its overall system implementation and funding strategy that each system will eventually be replaced. A key part of the system planning process should be to develop plans and "trigger points" to initiate necessary replacement projects.

5.7. Information Systems Architectures Strategy

Providing multiple alternatives for computer systems allows the City maximal flexibility in selecting tools that meet defined business objectives. In all cases, systems selected should meet standards for data accessibility and network compatibility, driving toward the vision of transparent technology and the Interconnected City. The standards adopted for "open systems" by the City should apply regardless of the architecture selected.

In terms of system architectures, the City and County of San Francisco can adopt a mixture of centralized, decentralized and distributed strategies. The definitions of these strategies are as follows:

- **Centralized**

  A centralized architecture can be defined as a method of supporting systems which require City-wide access. In other words, those systems which are used and updated by multiple departments and that reside, data, software and hardware, in one location. For instance, the newly implemented FAMIS which runs on the mainframe, and will for the foreseeable future, is centralized because most departments will need regular access to the system.

  The network infrastructure for the City and County will need to be managed centrally. The network is the City-wide backbone which allows for quick and reliable City-wide access to information systems. A centralized approach rather than a decentralized approach will ensure consistency of network standards and administration and the ability of users to cross boundaries easily and transparently.

  Public access facilities provide the ability for the media and the public to access City information from a wide variety of sources. Given the security constraints required for such an open system, and the dependency on the City network infrastructure to keep public information up to date, standards for and quality assurance of the public access facilities should be centralized as well.

- **Decentralized**

  A decentralized architecture can be defined for those systems which do not require City-wide access. These systems are implemented for the direct benefit of one specific department in support of a unique program or function. Decentralized architecture will entail having the resources, equipment and system selection available to the specific department while adhering to the City's standards for systems and communication. Departments have the option of supporting decentralized applications using Departmental System Group staff, or using the resources of the Central Technology Group to support those systems. The physical location of the computer is not specified as a part of the decentralized architecture.

- **Distributed**

  Distributed architecture is defined as a system in which users from various departments have responsibility for a portion of the information but the overall system is administered centrally. For instance, a GIS may be administered by one manager but departments such as public works, utilities and finance may by responsible for the maintenance of the portion of the data that relates directly to their function. The information on the system is for all to use but specific aspects of the system are assigned to different departments as appropriate. For these

systems, the common data and software are managed centrally, while the departmental data and software are managed similarly to the decentralized architecture. Standards for distributed systems must be more rigid in order to ensure needed levels of integration.

5.8. Procurement Strategy

The procurement process must provide a manner in which new technology and services can be acquired in a timely, flexible and responsive manner. The rate of change in technology makes it almost impossible for non-technical staff to remain current enough to make acquisition decisions. Subtle differences in equipment and software can reflect in large changes in the ability to support business requirements. Computer systems are simply not commodity purchases. Low cost solutions are not necessarily the best ones. Overly tightly written specifications can preclude the City from acquiring more effective or newer alternatives. Lengthy procurement procedures can almost assure the City of not acquiring the most current technology.

The purchasing policies and practices of the City need to allow the departments to acquire the best possible solutions within their budgets in a timely manner. Using the example of the PC Store, the City should explore the applicability of "open to buy" orders, site licenses, bulk service contracts, CMAS and other pre-approved contract award schedules and other cost effective alternatives for acquiring needed products and services.

The City should evaluate leasing equipment on an on-going basis, providing predictable cash flow payments and allowing regular updates of City equipment. The current City environment of "peaks and valleys" for technology funding may not be the most appropriate way of continually providing effective tools to its departments.

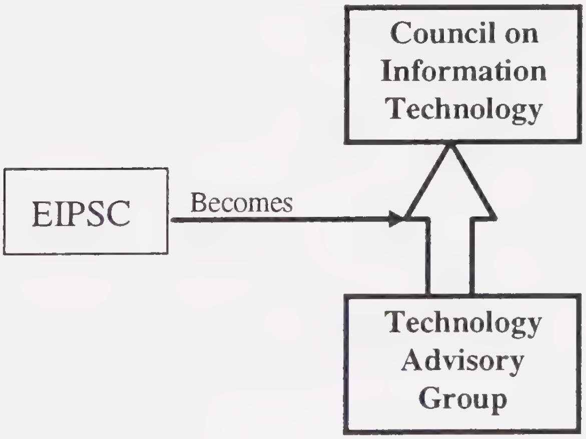
6. Action Plan

During the management workshop, a consensus was achieved on specific steps to be taken to make this plan a reality. This section documents those steps.

6.1. Adopt a new Governance Policy

The first step is to create effective governance bodies which will oversee and approve the manner in which information technology is implemented. The current Electronic Information Processing Steering Committee (EIPSC) should be split into two distinct governing bodies which will work closely together as illustrated below.

Creating this new governing body will require development of a specific ordinance, which should be drafted by EIPSC staff and presented to the proposed membership for review prior to presentation to the Board for adoption.


IT Governance

6.1.1. Council on Information Technology

The Council on Information Technology has responsibility for advocacy and sponsorship of technology. They are the governing body which will communicate and promote the City's vision for information technology. They are also responsible to make sure that the direction and coordination of technology is aligned with the City's established vision.

6.1.1.1.Responsibilities

COIT will be responsible for the direction and coordination of the City's technology, including approving and updating the strategic plan, establishing the political structure necessary for multi-departmental projects, and setting priorities for implementation of new systems and technology. In addition, they will be responsible for communicating, promoting and making sure that the City's established vision for information technology is followed. The Committee should become a strategic policy and advocacy committee. Basic guidelines should be set such that time and money are not invested in poor technology decisions.

The Council will be responsible for presenting and defending projects to the Mayor and Board as a part of promoting the benefits of the City's technology vision and plans. Participants should understand technology and be a proponent of technology enhancements for the City.

COIT will provide the information needed for an annual, joint report to be developed by the Board of Supervisors, Mayor and Controller, which will determine the capital projects budget for technology and will set priorities City-wide for major technology projects. Projects authorized through this report will be answerable to COIT. The sponsoring department(s) and project managers will develop periodic status reports both during and after the project to determine if budget, schedule and performance objectives are met.

Given the need for COIT members to be familiar with technology and to be attuned to the public's need for access to information, COIT could serve the City as the policy body for all technology issues, including regulation of telecommunications in the City and administration of telecommunication franchises. However, since COIT is to plan for and supervise the use of telecommunications within the City and its agencies, there is the potential for a conflict of interest between the role of regulator and the role of consumer of services. This potential conflict will have to be addressed as the City establishes its telecommunications regulation direction.

The Council will:

- Approve the Strategic Plan
- Annually review and revise the Strategic Plan
- Serve as the City's advocate for technology implementation
- Adopt City-wide technology standards and develop policy and direction for establishing and updating City-wide telecommunications capabilities
- Develop and maintain plans and policies to implement the Funding, Procurement and Human Resources Strategies identified in the Strategic Plan
- Define a threshold for "major" technology projects and approve initiation of those projects

- Establish priorities and budgets for multi-departmental systems
- Establish and track standards for disaster recovery and business resumption planning from a technology perspective
- Track progress on major technology projects

Additionally, they may be called upon to set or advise on policy for technology and telecommunications regulation.

6.1.1.2.Membership

The Council on Information Technology will be called upon for information technology policy decisions, so the membership needs to consist of those who have the authority to make decisions and enforce policies which may affect many departments. Membership should include:

- A member of the Board of Supervisors
- The Mayor, or the Mayor's chief financial advisor
- Controller
- Department heads representing the City's major functions

In view of the increasing importance of public access to government information, and the role of COIT in regulating telecommunications in the City, consideration should be given to including a member of the public on the Council.

The Committee should set a schedule for meeting on a regular basis to ensure the commitment and availability of each member.

6.1.2. Technology Advisory Group (TAG)

The Technology Advisory Group is the technical arm of the Council on Information Technology. The Technology Advisory Group will be responsible for reviewing technology plans and feasibility analysis prior to departments making major commitments to new technology. This will ensure that new systems are consistent with the cross-departmental vision and can be adequately supported.

6.1.2.1.Responsibilities

The Technology Advisory Group is responsible for the following:

- **Plan review**

  The Technology Advisory Group will review departmental business plans for conformance to the vision and strategies set forth in the City's strategic plan. They

will also provide staff and advisory capabilities to the Council on Information Technology in the regular review and revision of the City's strategic plan.

- **Technology Standards**

  The Technology Advisory Group will develop standards for software, hardware, communication and training in keeping with the vision and strategies of the City's strategic plan, and recommend those standards to COIT for adoption.

  The Technology Advisory Group will develop a City-wide standard indicating the minimum technology needed for a knowledge worker to be successful. This minimum standard will also include the baseline necessary for a knowledge worker to be able to integrate and communicate as dictated by the City-wide vision.

- **Policy Recommendations**

  The Technology Advisory Group will be called upon by COIT to develop specific recommendations in areas such as human resources and purchasing policy for the City. Using the technical knowledge available in TAG, realistic recommendations for training and skill level requirements, staffing and position definitions, and procurement rules for applications, network and computer equipment can be developed.

- **Purchasing approval**

  The Technology Advisory Group is expected to assume the purchasing approval function of the current EIPSC for all but major systems, which will be approved by COIT and reflected in their joint report.

- **Identification of system integration and data sharing opportunities**

  As the Technology Advisory Group is a single location within the City that reviews projects by both the Central Technology Group and individual Departmental Systems Groups, they will have a broad picture of both business requirements and available technology City-wide. Therefore, TAG is expected to provide recommendations on an on-going basis for projects which would be multi-departmental in nature, including sharing of data and resources or development of system integration or interconnection capabilities.

6.1.2.2.Membership

The membership of the Technology Advisory Group should be management or technical staff responsible for some aspect of technology in various departments. Many of the members of the current EIPSC will become members of the Technology Advisory Group. In view of its increased role in the areas of telecommunication and technical advice in regulation of cable, telephone and other industries, membership should be increased to allow for these additional specialties.

The current rotating membership system should be reviewed to assure that representatives from each major functional area of the City are included, and that technical management from major projects are represented.

6.1.3. Major Project Steering Committees

Department head level steering committees need to be established for each multi-departmental project in the City. Specifically, steering committees should be established or formalized for the following projects:

- Property System
- Public Safety and E-911 Systems
- Human Resources
- Law and Justice Systems
- Public Health and Human Services
- Geographic Information Systems (GIS)
- On-Line FAMIS

6.2. High Priority Technology Projects

The management workshop agreed that, in order to make this plan "real" for the City, a series of high priority projects should be approved for immediate action. These projects would be the first to be undertaken under the new governance structure. The projects selected are:

- ***The E-911 Emergency Dispatch System.*** While this project is already underway, the management group wanted to emphasize the priority they place on the timely and successful completion of this effort. While the management team discussed specific approval of funding for the interim Police computer-aided dispatch (CAD) system, the consensus was that the project for complete replacement of the current system should receive highest priority. Under the new governance and service delivery strategies, this project could pave the way for integration of the data and communications capabilities of the Central Technology Group
- ***The Property System.*** The Assessor's Office, in conjunction with the Treasurer and the Auditor, has already issued an RFP for a new property tax application. This project has received attention from the highest levels of management in the City. The management group emphasized that the revenue realization potential for this system made it an extremely high priority for expedited implementation. This system can also serve as a model for integrating applications with the Geographic Information System

already underway in Public Works, and for developing a multi-departmental steering committee which can expand as additional departments are added to the initial group.

- ***The Human Resources System.*** Departments universally indicated that they had insufficient information on their personnel and collective bargaining requirements to make informed management decisions. The lack of information has reached a critical state. The management group unanimously added the Human Resources System to their list of the highest priority projects. The Human Resources System can also serve as the driving force for interconnecting the City to provide access to the data from all City departments.

7. Recommendations

In addition to the Action Plan put forward by the participants in the management workshop, KPMG recommends a series of other policy and organizational changes to help implement the strategies in this Strategic Plan. Some of these recommendations were discussed during the management workshop; however, there was insufficient time to thoroughly resolve all of the issues associated with the specific recommendations. They are presented here to generate further discussion and to provide a framework for COIT to set the policy and direction for technology in the City.

7.1. Central Technology Group

Carrying out the strategies established in the plan will require a number of organizational changes beyond creation of the new governance bodies. Specifically, the establishment of a Central Technology Group with responsibilities defined based on these strategies should be one of the first steps undertaken by the City.

The current Information Systems Division (ISD) can become the nucleus of the Central Technology Group (CTG). The telecommunications and radio communications functions currently assigned to the Department of Electricity and Telecommunications should be merged into the ISD organization and appropriate internal changes in ISD should be made to manage the new functions, as indicated in the Service Delivery Strategy. COIT would have responsibility for setting the direction for the City's use of communications and networking, as well as adopting standards for interconnection. COIT can make the decisions as to where an internally developed communications system might be appropriate and where the use of commercial or other communications networks could be more cost effective or timely. The management workshop, in discussion the issue of telecommunications, generally agreed that there was a logical need to combine voice and data communications with the data technology functions of the City.

It was the consensus of the management workshop that the Central Technology Group report to the Controller for at least the next year, or until the current organizational changes in the CAO's Office are completed. At that point, COIT should reconsider the reporting relationship of the Central Technology Group, based on maintaining a City-wide view of technology and the stability required for long-term projects to be managed successfully..

7.1.1. Mission

The mission of the Central Technology Group will be to provide quality services in technology consulting, acquisition, implementation and support to help the departments of the City be successful in their business strategies.

7.1.2. Responsibilities

The Central Technology Group should be given full responsibility for development and maintenance of the technical infrastructure of the City, comprising all voice and data communications between departments. The Central Technology Group should establish a division to plan and manage the communications infrastructure. Special attention should be paid to those communications capabilities required for the high priority projects defined in the Action Plan:

- Radio and data communications for E-911 and related systems
- Data network capabilities to connect departments participating in the Property System, as well as providing connections between the Property and GIS systems
- Data network capabilities to provide the widest possible access to the Human Resources System.

Other responsibilities for the Central Technology Group should include:

- System integration, especially those project involving the integration of systems belonging to multiple departments
- Advice and information on new technology and its application to the business needs of the City
- Technical support for public data access
- Training for centralized systems, departmental systems under their support, and baseline PC and office automation systems
- Developing training programs for City technical staff
- Tracking implemented and planned technology City-wide
- Quality assurance and operational standards for distributed and decentralized systems and departmental systems staff
- Mainframe, minicomputer and distributed systems maintenance and operations
- Advice on telecommunications and related regulatory issues to COIT and TAG as needed
- Other services as requested such as:
  - Consulting
  - Programming
  - Implementation
  - Support

7.1.3. Funding

Funding for the Central Technology Group can be provided by a combination of direct charges for specific services, recognition of City-wide obligations and overhead allocations. The fiscal and strategic implications of each alternative must be evaluated for each service provided by CTG. For example, mainframe operations are traditionally billed based on system usage. However, if the City's strategy is to increase usage of standard office automation and PC tools, direct charges for installation and training may be prohibitive for smaller departments.

The Controller's Office should conduct a costing study to determine the actual costs of providing specific services, and to evaluate the fiscal effects of including them in a cost allocation plan or charging departments for usage or services provided. Those costs, once determined, could also provide a benchmark to compare internally provided services against contract service providers and provide additional information for evaluating the cost-effectiveness of City technology services.

The City should also establish a cooperative budgeting process, where input from user departments is taken into consideration in building the CTG budget. Especially in the discretionary services such as consulting and system development, customer demand should be a driving factor in determining staffing and support levels within CTG. The current system where support is not always available at levels that meet customer demand leads to further unplanned decentralization of the technical resources of the City. Departments simply hire staff to provide services which are beyond the resource levels of ISD to provide. Some of those resources might have a greater impact on City-wide productivity if they could be hired into the CTG.

7.1.4. Human Resources Policies for Technology Staff

The strategies adopted in this plan call for a series of new human resources policies to enable the City to recruit and retain a high quality technology support staff. Specific policies are needed to address the following issues:

- *Job Descriptions for Technology.* Rapid changes in technology preclude tightly written job descriptions. Technology staff must have the flexibility to get the job done without unnecessary restrictions on responsibilities or duties assigned to qualified individuals.
- *Skills Needs Assessment and Inventory.* The City should develop a specific assessment of the skill sets and staff levels required to support its current environment effectively. By then conducting a skills inventory survey of current technical staff, a "gap analysis" can be performed to determine levels of skills that are currently

deficient. Part of the planning process for each major system should be an update to the skills requirements to reflect staffing levels and specific knowledge and abilities required for implementing and supporting the new systems.

- ***Mandatory Training for Technical Staff.*** Technology professionals require on going training to keep abreast of advances in the field and maintain their skills. The City already has policies in place to maintain certification and skills of professionals in many other areas (CPAs, paramedics, police officers, assessors, etc.) The City should adopt a policy requiring periodic training for its technical staff, and should budget the time and money required to carry out this policy.
- ***"Free to Move" Career Paths.*** A significant part of the City's strategy to retain highly qualified technology personnel should be to provide challenging career paths. Technology professionals should have the choice to continue to work in the technical arena or move into management. The City, with large Departmental Systems Groups in addition to the Central Technology Group, should view the technical staff as City-wide resources, and should encourage promotions and transfers among the various groups as part of providing flexible career options.
- ***Flexible Staffing Levels.*** The Central Technology Group must meet varying levels of customer demand in order to be successful. Use of full-time City employees is desirable to provide the City with a stable support environment. Additionally, the City can reap the benefits of its investment in training for full time employees. However, peaks and valleys of demand require a more flexible approach to staffing. The City should explore how part time employees, temporary employees and contractors can be used effectively to augment the full time staff during periods of high demand.

7.2. Funding for COIT, TAG and Supporting Staff

As a policy-making body within the City, COIT should be viewed as a general City responsibility from the point of view of budgeting. Funding for the Council and supporting advisory group and staff could be derived from a combination of General Fund moneys and an allocated contribution from departments.

7.3. Strategic Plan for Information Technology - Phase II

A top priority for Council on Information Technology's should be to establish guidelines for the completion of Phase II of the Strategic Plan for Information Technology. Additionally, policy should spell out the frequency and method which the plan will be reviewed and updated. For instance, the strategic plan will be reviewed on an annual basis and modified as the business needs of the City change, based on recommendations from the Technology Advisory Group.

The Council on Information Technology will oversee and coordinate the project. They will be called upon to establish priorities for major projects and to approve standards and methodologies called for in the Plan.

7.3.1. Current Systems Assessment

A current systems assessment should include an inventory of all systems City-wide and their current status. In addition, an inventory of all current projects and technical skills available City-wide should be completed. This information will provide a starting point for an action plan allowing the City to take maximum advantage of its current investment in equipment, software and personnel.

7.3.2. Business Processes to be addressed by Technology

The IT Strategic Plan needs to be based on the way technology can help individual functions improve their business processes. Each business unit will need to participate in the planning effort in order to identify those areas where technology and/or business process redesign would have the greatest positive impact.

7.3.3. Organizational Goals for the new Central Technology Group

The strategic planning process provides the perfect vehicle for the operating departments, the customers of the Central Technology Group, to help develop the mission, goals and objectives of that group. To develop a truly customer-driven organization, the operating departments, through the IT Strategic Plan, can develop a menu of services they anticipate requesting from the Central Technology Group. This process can in turn drive the organizational assessment of CTG which will be necessary to ensure the success of the merger of the telecommunications and information systems processes.

7.3.4. Project Plans

The Strategic Plan should include consideration of all major projects pending or anticipated over the next five years. These projects should be documented with a business plan, including:

7.3.4.1.Project Prerequisites

The project plan should explicitly define those elements that must be in place for the project to be successfully completed. Prerequisites could include communications and networking capabilities, interface standards and connections to other systems as well as any organizational and policies initiatives that should precede the project.

7.3.4.2.Goals and objectives

The project must be laid out in business terms, with clear indications of the processes to be impacted, the anticipated effects of the proposed system on the organization and its customers, and the expected improvements, stated in measurable terms.

7.3.4.3.Organizational Impact

An analysis of other departments or functions within the City that will be impacted by the project should be presented. The Technical Advisory Group will be expected to evaluate this impact statement to make sure that all impacted departments are included in the planning process and that, if possible, additional departments can be served by "hitching a ride" on the project.

7.3.4.4.Budget

An estimate of the overall cost of the project, both initial and on-going, should be presented. Questions should be answered such as:

- Will the project span more than one year? If so, what is the projected cash flow in each year?
- How will the project be funded?
- When can projected savings be expected, and what is the payback period for the project?

7.3.4.5.Scheduling

Each project in the plan should include a schedule. The schedule needs to be set based on the urgency of the project, the length of time to get the project completed and the availability of resources to accomplish the project.

7.3.5. Establish Priorities

The Council on Information Technology will review all projects in the plan and determine and establish priorities. The final result will be a five year project plan and budget for major technology projects, approved by COIT.

7.3.6. Adopt the Plan

COIT will perform its advocacy role in presenting the Plan to the Mayor and Board of Supervisors, and having the Plan and its budget adopted as City policy.

7.4. Year 2000 Issues

ISD has started the process of evaluating systems for their ability to handle dates after the turn of the century. It is critical that all City systems be evaluated in time to either make necessary modifications or replace those systems found to be incapable of performing after the end of 1999. This project should be given extremely high priority by all departmental systems groups.

7.5. Networking - the Interconnected City

The first step to becoming the "Interconnected City" is to complete the City-wide infrastructure for connectivity. In order to proceed in a coordinated manner, the Council on Information Technology will need to adopt networking standards for building the infrastructure based on recommendations from the Technology Advisory Group. The Council should also set a specific target date for completion of the basic infrastructure, as measured by the ability to send E-mail from any office of the City to any other.

This project can proceed in parallel to Phase II of the Strategic Plan, but the budget for infrastructure development and support should be a part of the five-year technology budget. The costs of development and maintenance of the Interconnected City should be included in the Controller's study of Central Technology Group costs and how to fund them.

7.6. Develop project review procedures

The Council on Information Technology will be the last group to review major project plans prior to formal proposal for budget approval. In order to facilitate their review role, the Council on Information Technology needs to establish procedures for the submitting projects for review.

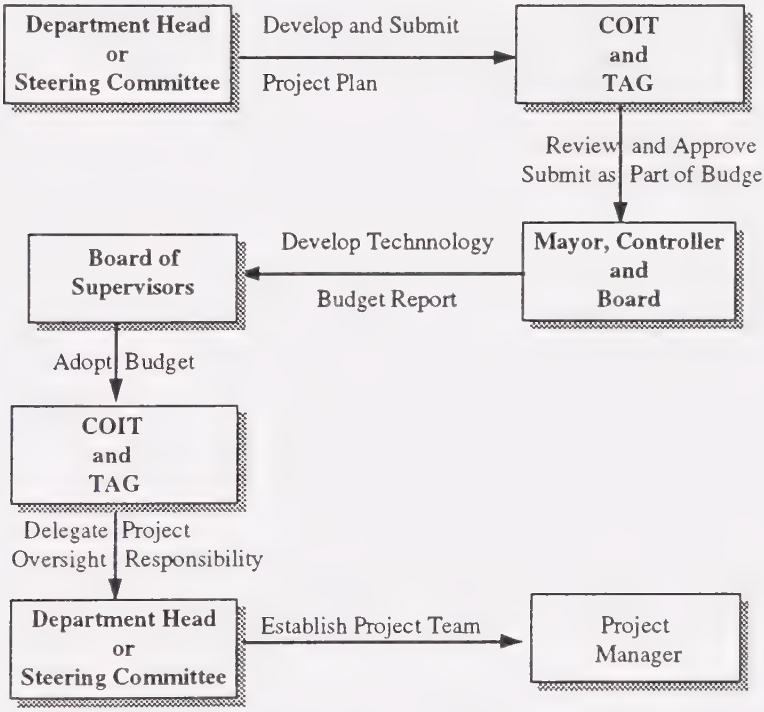
As part of the definition phase of a system implementation project the department or departments should assess current processes, procedures and organization of that function, and document the results as a part of the business plan for the project.

The goal of the COIT project review should be to ensure that:

- Realistic, measurable performance objectives for the new system are established and a mechanism for tracking them is put in place
- The City has learned from experience and "best practices" so that procedures and policies are established to ensure improvements in both effectiveness and efficiency of service
- Proposed new technology will be an integral part of the service delivery process

- Data will be captured as close to the source as practical
- Budgets and schedules proposed are realistic and achievable
- Technology and architecture proposed are realistic and conform with City standards
- Proper consideration has been given to long-term maintenance and system support issues
- Consideration has been given to City-wide or multi-departmental uses for the information to be contained in the system and/or the technology to be employed

A recommended approval process, which is limited to those steps necessary to assure conformance with the plan, is described by the diagram below:



7.7. Establish Universal Baseline for Information Technology

The Council on Information Technology should establish a City-wide baseline for information technology. This is defined as the minimum level of technology for a City knowledge-worker, regardless of department or function. By establishing a minimum, COIT can provide the flexibility needed for departments to meet their unique needs by exceeding the standards set. The baseline needs to be set in terms of the following:

- Minimum desktop configuration
- Office automation software standards

- Networking communication standards
- Training and productivity standards

7.8. Establish Departmental Systems Quality Standards

The Departmental Systems Groups are those individuals who work directly for a department other than the Central Technology Group and who support the use of technology within their department. These individuals will continue to report to their departmental managers. Departmental technical staff should meet with members of the Central Technology Group in order to develop appropriate quality control and operational standards to assure the integrity of all City systems. Departmental staff should also coordinate system acquisitions with the Technology Advisory Group to resolve issues of information sharing, confidentiality and technical standards for communication and system integration.

7.9. Continuing Education Policies

City staff will not be able to take best advantage of the systems and technology available to them without proper training. Changes in standards and updates to technology carry ramifications for ongoing training for City staff. Just as the City would not provide new tools to a mechanic without assuring that he/she was instructed in their use, so the City should ascertain the impact of new technology on the required skill sets of its staff and develop policies to upgrade staff's skills appropriately.

On the executive and policy making level, a different kind of education is required. Department heads and division heads need to be familiar with technology trends and their impact on business processes. Board members, the Mayor's Office and other policy level officials need to be aware of technology investment requirements and the ways in which those investments can generate a "payback" in budgetary, service quality, service effectiveness and customer satisfaction. This management education can take a number of forms: specific workshops and communications developed by COIT and the Central Technology Group; attendance at conferences and meetings with peer organizations; and communications with and visits to other organizations to informally "benchmark" the City's progress in implementing technology.

7.10. Develop Policies and Procedures for Technology Procurement

There was an almost universal sense among City management that the current purchasing procedures and policies are not effective in acquiring quality systems and modern technology. While it may be obvious that complex application systems are not commodities that can be weighed, measured and awarded to the lowest bidder, the same is true for even desktop computers. Quality of the vendor in providing service and support can be more important than the price of the unit in terms of meeting the department's business requirements. Purchasing agents should not be expected to be technicians, and thus may not be able to accurately determine realistic substitutions for specified components, or to evaluate whether newer technology than that originally specified might be more appropriate for a given situation. Overall, the purchasing process for technology should be revamped. KPMG recommends a multi-phased process including the following elements:

- ***Establish role of purchasing as a facilitator.*** Purchasing should be a partner to the departments in the acquisition of the best possible cost-effective equipment and services.
- ***Evaluate "Best Practices" for procurement of technology, including public and private sector practices.*** Determine which practices can be adapted to the environment in San Francisco, and how that implementation can take place (e.g. procedural change, Board resolution, etc.)
- ***Establish performance goals for purchasing.*** Responsiveness, savings, accessibility to the broadest possible vendor community are all goals that can be quantified as a way of evaluating the ongoing success of the purchasing function.
- ***Evaluate options for pre-approved acquisitions.*** Local, state and federal programs including blanket purchase orders, site licensing agreements, bulk purchases, CMAS and other multiple award programs can speed the process of acquiring technology and can work to reduce cost to the City.
- ***Develop criteria for evaluating lease options for ongoing project planning.*** The rapid rate of change in technology has made the useful life of equipment and software significantly shorter. There may be opportunities for leasing equipment and systems which would allow the City to upgrade its equipment in a more timely fashion. This area needs to be explored, and guidelines need to be established for determining the appropriateness of leasing for various projects.

8. Conclusion

Once the City and County of San Francisco have adopted this plan and established the governance and service delivery structures described in it, they will be well on their way to establishing a flexible, responsive, pro-active technology environment. The Council on Information Technology provides a mechanism to develop pro-active, business-driven strategies and to ensure the customer service orientation of technology in the City. The new Central Technology Group can be positioned to allow the City to take full advantage of the rapidly developing fields of network computing and integrated telecommunications.

There is still much work to be done. COIT must begin to function as a governing body, with authority to develop a capital budget for technology. The Central Technology Group must re-organize and re-focus its efforts as a responsive service provision organization. The City must adopt new policies and procedures to allow the vision it has articulated to become a reality.

KPMG